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FOOD AND AGRICULTURE

THE FAO EUROPEAN BULLETIN No. 7

BIMONTHLY PUBLICATION OF THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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The European Bulletin of the FAO has proved to be of considerable interest to numerous readers and a means of exposing the aims and work of the Organization.

It is possible, unfortunately, that this publication may be discontinued. In effect, the budget of the Organization is not unlimited and the program of work set by the Conference is extremely vast. On drafting the list of priorities for the 1949 activities of the FAO European Regional Office, it was found that funds were not sufficient to include publication of the Bulletin.

The question will be raised at the 4th Annual Conference of FAO which will meet in Washington on 15 November, and a final decision will be reached.

It was thought advisable, however, to acquaint our subscribers and readers with the circumstances.

(Editor's note)

Edited by the Information Service of FAO Rome

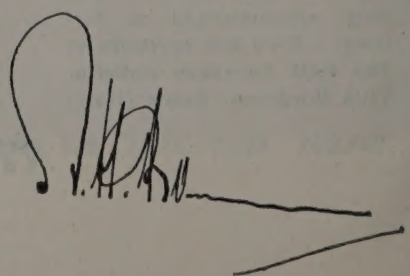
A. H. BOERMA
Representative for Europe of the Director General of FAO.
Director of the European Regional Office of FAO.

The Food and Agriculture Organization of the United Nations is an important medium of action on the governmental level which the countries themselves have brought into existence. I have had the advantage of being very closely associated with the activity of FAO for over two years in my capacity as representative of my country at numerous meetings. Consequently I was able to judge the wide range of not only the humanitarian and social aims of the Organization but also of the difficulties to be overcome before they can be attained. Nevertheless, I am firmly convinced that little by little, these aims will appear not only as a fine idea to be gained but as cogent facts. Therefore I feel that I am particularly fortunate in being able, as representative of the Director General of FAO in Europe, to devote my full attention to this task.

Concerning the difficulties which the Organization will come up against, my thoughts turn first to those — only too evident — which now prevail in Europe and which tend to set the countries at variance. I consider that the essential part of my work is above all to seek unity. Undoubtedly this depends on the goodwill of all the governments, all the countries, all peoples.

I know that the desire to accomplish concrete results by joint effort does exist, and I render homage to my distinguished predecessor Dr S. L. Louwes who, by his work, laid the foundations and thus blazed a trail.

To contribute to the welfare of mankind, that is my target : my efforts combined with those of all who believe in the ideal of FAO will — I earnestly hope — assist in building up the pacified and happy world for which we all long.



ANIMAL PRODUCTS AND THE FOOD SUPPLIES OF THE ITALIAN PEOPLE

by Prof. **B. BARBERI**
Director General
of the Central Institute of Statistics
Rome

1. Comparative studies on the mean standard of living of the population of different countries, or of the different income and occupation groups in a country, rightly stress the importance of the per caput consumption of animal foodstuffs.

It is generally acknowledged that, other conditions being equal, a high standard of living is accompanied by a high consumption of animal foodstuffs and that, inversely, a salient feature of populations with a low standard of living is the continued lack of these substances in their diet.

This is the case for the Italian people in general and, in particular, for many income or occupation groups including industrial and agricultural workers. The last mentioned group comprises personal operators, mostly small farm owners whom the great Italian statesman **Luigi Luzzatti** unhesitatingly defined, because of their material situation worse in many respects than that of farm workers, as the " proletariat of the proprietor group ".

Without studying family budgets, the following data* will suffice to indicate the inadequacy of the diet of the Italians, due not only and not so much to the insufficient calorie value of the average daily intake per caput, but also and especially to the small proportion of animal foodstuffs.

On analyzing the average daily intake and comparing it with that of other countries, it is evident that, according to modern nutrition standards, the situation is a pathological one which needs to be tackled and surmounted with the energy and urgency entailed by the seriousness of the symptoms which, it is hardly necessary to add, have become more acute because of the continued after-effects of the war.

TABLE I. – *Daily average available calorie values of the Italian diet per caput and according to vegetable and animal origin.*

Period	Calories furnished by vegetable products	Calories furnished by animal products	Total	% calories of animal origin
1911–15	2,236	343	2,579	13
1916–20	2,237	353	2,590	14
1921–25	2,437	346	2,783	12
1926–30	2,522	383	2,905	13
1931–35	2,272	370	2,642	14
1936–40	2,270	380	2,650	15

2. The problem of improving the dietary levels of the Italian population, therefore, is to obtain a more rational balance between vegetal and animal foodstuffs, so far impossible owing to the shortage of the latter.

The solution of the problem is closely linked with the general and, so to speak, age-long characteristics of Italian agriculture, on which are based the food habits now become traditional, maintaining the present stationary position instead of stimulating progress in farming and stockbreeding in order to meet modern requirements better.

* Cf. BARBERI, Benedetto. *Le disponibilità alimentari della popolazione italiana dal* 1910 *al* 1942. Istituto Centrale di Statistica. Bollettino mensile di statistica, No. 2, February 1946.

It is to be noted that these two factors cannot be easily or rapidly modified or eliminated.

A substantial and lasting improvement in the diet of the Italian people would entail changing the traditions of Italian farming by increasing livestock numbers and output in foodstuffs.

Unfortunately, Italian agriculture has to struggle against conditions which are definitely unfavourable for accomplishing any appreciable results in this direction.

It should first of all be noted that during the past 40 years when the general situation and markets more or less fostered the development of stockbreeding, it remained practically at a standstill, and despite some fluctuation, followed a progressive backward rather than forward trend.

The figures of the following table, although not always exact or comparable because the censuses and estimates do not refer in each case to the same period of the year, nonetheless clearly indicate the above trend.

Following the destruction caused through the war, which is evident from the 1944 figures, Italian livestock rapidly increased as the 1947 estimate shows.

Considering the situation from the standpoint of historical evolution, however, the stationary character of the phenomenon during a period rich in events, some of which favoured the development of stockbreeding, cannot be ignored.

TABLE II. — *Italian livestock numbers during the past* 40 *years.*

(*million head*)

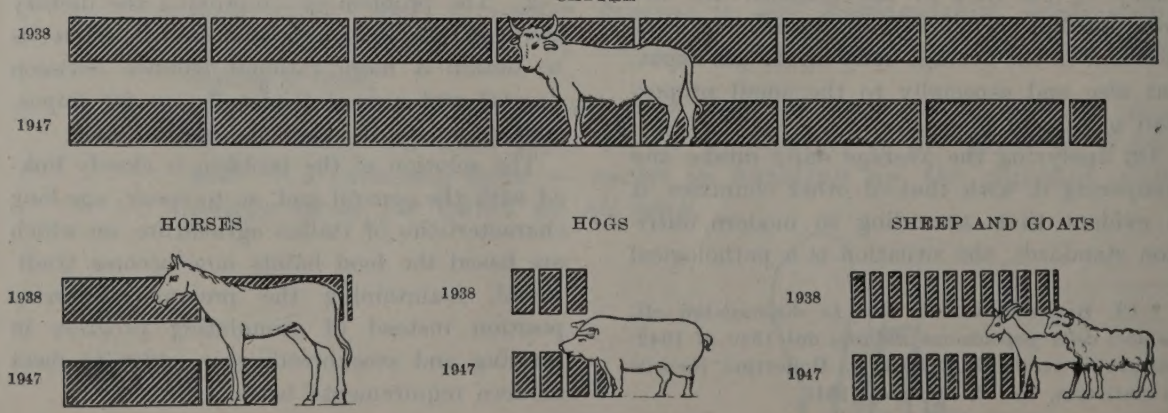
Species	1908 (census)	1930 (census)	1938 (estimate)	1942 (census)	1944 (estimate)	1947 (provisional estimate)
Equidae	2.14	2.31	2.02	1.77	1.50	1.53
Cattle	6.54	7.09	7.67	8.37	6.24	7.26
including cows . .	3.53	3.53	3.83	3.87	3.36	3.30
Hogs.	2.60	3.32	2.94	3.73	3.07	3.89
Sheep	11.42	10.27	9.47	9.42	6.97	8.32
including ewes . .	7.36	7.62	7.05	7.38	4.49	6.34
Goats	2.81	1.89	1.83	1.73	1.42	1.77
including she-goats	2.25	1.48	1.45	1.42	1.13	1.39

What, therefore, were the causes and forces, more powerful than these favourable factors, which hindered the normal increase of these different domestic animals ?

A comprehensive reply to this question would necessitate carefully examining the technical and economic aspects of Italian agriculture and considering them in relation to the phenomena of the same kind which stimulated the development of world agriculture and economy. Disregarding these more general aspects, which are sufficiently well known, attention need only be called, among the predominant causes of the depression in Italian stockbreeding, to those which, to use a Malthusian term, may be due to the pressure

Italian livestock numbers in 1938 and 1947

(each shaded rectangle represents 1 million head)



of means of support. This pressure is caused by the demographic situation of the country which necessitates giving priority to the cultivation of crops producing a higher food yield that is possible from stockbreeding.

Owing to the pressing need for ensuring the sustenance of one of the densest populations of the world and of Europe, the food supply problem had to be solved without spending too much time on the scientific, technical or economic aspects. Having to choose between quantity and quality, the latter had to be sacrified for the former. This is the simple explanation why Italian livestock did not increase during the last forty years while the population of Italy, however, increased from 30 million inhabitants to over 45 million, and the population density rose from 100 inhabitants per square kilometre to over 140, despite the mass emigration and losses caused directly or indirectly by wars.

3. This livestock situation results, on the one hand, in low per caput consumption of animal products and, on the other, in too slight and inadequate increase in the supplies of these foodstuffs, despite sometimes fairly appreciable imports.

The data in the following table indicate the serious consequences, in a few years, of the war on animal production.

The average per caput consumption of butcher's meat (beef, mutton, pork, horse-flesh) which in 1940 amounted to 16 kg. dropped in the following years and in 1944 was only about a quarter of this figure. Despite some increase in the next few years, consumption still remained below the pre-war level. It should also be taken into account that a considerable percentage of the amounts indicated refer to the consumption of the Italian armed forces and even the foreign troops stationed in Italy. Consequently, the *actual consumption of the civil population was much lower* than the figures imply.

The appreciable reduction in the consumption of butcher's meat was only compensated to a very small extent by poultry and rabbits, although efforts were made in those years to stimulate production.

TABLE III. — *Mean per caput consumption of some animal products.*

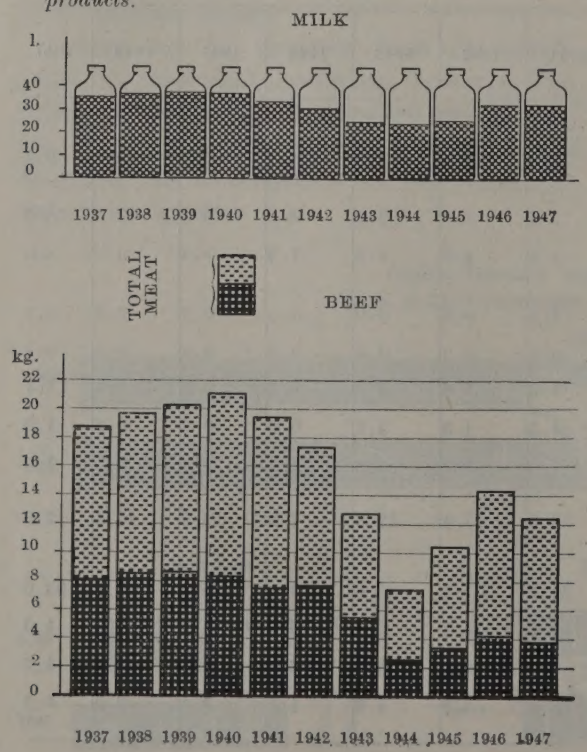
Type of meat and other products	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947
Meat	14.1	14.9	15.4	16.2	14.5	12.8	8.8	4.4	7.3	10.7	9.1
beef	8.0	8.5	8.6	8.3	7.5	7.7	5.5	2.5	3.4	4.3	3.8
pork	4.7	5.1	5.4	6.4	5.4	4.0	2.5	1.3	2.9	4.9	3.9
mutton and goat-flesh	1.1	1.1	1.2	1.3	1.3	0.8	0.6	0.4	0.7	1.2	1.1
horse-flesh	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.3
Offal	1.7	1.9	1.9	1.9	1.9	1.6	1.1	0.5	0.9	1.4	1.1
Poultry	1.6	1.6	1.6	1.5	1.5	1.3	1.1	0.9	0.7	0.8	1.0
Rabbit	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.7	1.6	1.5	1.3
Total	18.6	19.7	20.3	21.1	19.5	17.4	12.8	7.5	10.5	14.4	12.5
Milk	35.8	37.3	38.2	37.6	34.2	31.5	25.6	24.8	26.4	33.3	33.6
Butter	1.3	1.3	1.4	1.4	1.2	1.1	0.8	0.8	0.8	0.8	1.0
Cheese	5.2	5.4	5.6	5.7	5.1	4.6	3.7	3.4	3.5	3.6	4.2
Eggs	7.3	7.2	7.1	6.9	6.4	5.9	5.0	4.1	3.4	3.6	4.5

It can be seen that, even taking into account the consumption of poultry, rabbit-meat and offal, the consumption curve does not show any substantial change. The above figures indicate the critical food situation of the Italian people during the crucial period of the war, from 1943 to 1945. Unfortunately, in 1947, the situation had not improved and the consumption of meat in that year was lower than in the previous year, owing to the necessity of building up national herds and flocks, which entailed a reduction in slaughtering despite the high prices reached on the open market for livestock.

The consumption of dairy products and eggs shows the same trend, though not so markedly. The diminution in the consumption of milk, however, from about 38 litres per caput prior to the war to 25 litres in 1944, is much more serious than the figures imply, as milk has always, and consequently even previously, formed too small a part of the Italian diet.

It should be noted that in 1946 and 1947, supplies from abroad, on a trade or other basis, contributed towards raising the consumption level, particularly in the case of meat and milk. To be exact, it should be added that, in calculating the consumption for the years 1944 and 1945, no account was taken of the supplies furnished by the Allied authorities, as the amount is not known. This forced omission, however, does not appreciably modify the pattern of the food situation turned pathological not only because of the quantitative reduction in consumption but also of the increasingly marked disequilibrium in the diet of the Italian people.

Average consumption per caput of certain animal products.



4. This being the position, the question is whether it will be possible, and when, to recover the pre-war food level, and to lay the groundwork for the necessary improvement. It should not be forgotten, as briefly stated in the beginning of this article, that the average diet in Italy, even before the war, was well below the minimum modern standards.

To find a solution to this problem, the question comes back to the possibility of increasing the national herds and flocks. It may be added that the question particularly concerns cattle. The rearing of cattle, however, although much more important than that of other farm animals from the standpoint of meat and milk production, requires special technical and economic conditions which are not always compatible with the general conditions of Italian agriculture.

If it may be said, in general, that livestock are poor processors of forages and other feedingstuffs into products for human consumption *, this is particularly true of cattle.

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* A few years ago, the author of this article, by way of experiment, made a statistical calculation of the food yield of land grown to forage crops, compared with the yield of the same area producing food crops. (Cf. B. BARBERI, *Il rendimento alimentare delle principali coltivazioni erbacee*. Istituto Centrale di Statistica, Rome, 1943). These calculations show that, while the average yield per hectare amounts to 12.48 million calories for rice, 5.50 for potatoes and 4.17 for wheat, etc., the average yield of forage crops is equivalent to only 0.33 million calories, less than a tenth of the general average yield of the principal Italian herbaceous food crops obtained in the three-year period 1939-41 to which the investigation referred.

The two possibilities, with local resources, of improving the Italian diet, namely : (*a*) the increase of national livestock numbers and, in particular, cattle stocks, and (*b*) the unit increase in yield in meat and consequently the average live weight of the animals, soon come up against the problem of forage supplies. The objective which could be reached in this direction and to which, fortunately, Italian stockbreeding is tending, is marked by the five-year program for the building up of national herds and flocks in accordance with the participation of Italy in the European Recovery Program.

It probably will not be difficult to carry out this program according to which, about 1950, the livestock numbers should be slightly higher than pre-war, but the problem will be to maintain this level under the system of free international trade advocated by the program in question.

Supposing that no difficulties occur, the pre-war consumption of animal products cannot be regained without considerable imports, calculated in the case of beef, at 40-50,000 tons per year.

Even to raise this consumption level slightly which, as already pointed out, would be advisable, imports would have to be double the above figure. This, however, would still be far from the optimum which nutrition experts recommend to public authorities in planning an adequate standard of living for the different groups of the population.

Since, at the present moment, these demands also arise in other countries, it should be noted that, in regard to this grave problem, Italy is in a special situation. In effect, the demographic pressure per unit productive area (not to speak of other economic aspects) is much stronger in Italy than in most countries.

In addition to this particular aspect of the situation in Italy, there is another partly derived from the first. Under the pressure of enormous food requirements, this country is forced to solve the problem of dividing the arable area among the different crops without keeping too closely to orthodox economic principles. On the other hand, in countries where this pressure of vital requirements is less strong, the liberty to choose, according to economic criteria, the crops to be grown, rests unaffected and even facilitated.

It is the situation itself of Italy which renders the nutrition and standard of living of its population a problem peculiar to this country, and practically insoluble if kept within the too narrow limits of national economy.

Consequently, it is vitally important for Italy to collaborate actively with international organizations, particularly with those engaged in food and agricultural fields, their success being closely linked with the obtaining of better conditions for the welfare of its population.

EUROPEAN FEDERALISM AND HUNGER PROBLEMS

by **M. CÉPÈDE**

Address given on 1 May 1948
on occasion of the 'Journées Fédéralistes d'Amboise'
(France)

An important international operation needs, as Father Delorme used to say : one faith and one authority. We could just as well say : one ideal and institutions.

During the second world war, the ideal proclaimed as the goal of the war in the Atlantic Charter consisted of four freedoms, of which the most important, as Mr. Arthur Wauters has stated, is undoubtedly freedom from want.

To attain this target in its essential aspect, namely, adequate food consumption, the United Nations which met in 1943 in Hot Springs, decided to set up the Food and Agriculture Organization of the United Nations. This Organization came into existence in October 1945, in Quebec, and was the first of the specialized bodies of the United Nations, older, by a few days, than the UNO itself.

In what way can the action of a European federation, and more particularly in West Europe, contribute to this great undertaking ? What is the situation of the countries in western Europe confronted with this acute problem, namely, hunger ? These are the questions which I would like to go over briefly.

Some salient facts can be drawn from the world food survey effected and published by FAO :

First of all, to meet the needs of the world whose population is constantly increasing — in 1938 half the inhabitants did not have enough food — world agricultural output will have to be doubled between 1960 and 1970.

On the other hand, western Europe with 0.28 ha. of cultivated land per inhabitant is just as densely populated as east (0.2 ha.) and south (0.32 ha.) Asia. Only a very intensive agricultural technique permitted obtaining (1938), per hectare cultivated, record yields which, expressed in original calories per day, are equivalent to three times (18,750) those of North America (6,125), nearly 3.7 times those obtained in the U. S. S. R., 136 % of the yields in eastern Asia and 208 % in southern Asia.

Despite these remarkable results, western Europe was unable to feed its people without the addition of imported food, because even on the basis of 2,840 calories per person per day, including about 610 of animal origin, which was the average intake of the inhabitant of Western and central Europe, it would have been necessary to procure

2,230 vegetable calories			2,230
610 animal	»	× 7 =	4,270
			6,500 original calories

to ensure the diet of a European for a day, while western Europe only produced 5,250 original calories per inhabitant per day. This means that western Europe had to import approximately 30 % of its food consumption, that is, 43 % of its food production, expressed in original calories.

In effect, it is well known that, besides imports of actual foodstuffs, western Europe imported feedingstuffs to such an extent that only a small proportion of its animal products were derived from European soil. Where did western Europe get these feedingstuffs ? By importing from America, central and eastern Europe, from Africa and Asia.

North America, having 1.60 ha. per inhabitant, was already producing 10,000 original calories per caput and, consuming 3,070 (including 870 animal calories), namely, 8,290 original calories, was in a position to export 20.6 % of its consumption, that is, 17.1 % of its food production. At the other extremity of the globe, south-eastern Asia was an occasional exporter, because in some of the large islands, the consumption of animal products does not exceed 100 calories per caput per day of a total food intake of 2,040 calories, or about 2,640 original calories.

If food consumption had to be assured merely on the bases calculated according to the food targets of FAO, North America could not continue to export without considerably increasing production by 1950. Moreover, it would be absurd to expect food imports from other continents.

Under these circumstances, what is the position of western Europe ? With a cultivable area similar to that of Asia per inhabitant to be fed, having already attained a record intensity in agricultural production, it has less possibility than any other region in the world to increase output. Production costs are already apparently very high compared with those in exporting countries since frequently no account is taken of soil exhaustion, nor of the taxes which augment European prices.

Under economic conditions when, as was the case before the second world war, these differences would have no effect, when competition would continue on a ' commercial ' basis, agriculture in Europe and, in particular, in western Europe, would be the weakest link, the appointed victim of future economic upheavals.

On the other hand, production costs in western Europe cannot be reduced by cutting down food crops, for two reasons, as experience from the last two world wars has clearly shown : firstly, except for certain fats and sugar, before the war staple foods were only exchanged between countries to the extent of less than 10 % of world production and consumption, and consequently, an appreciable diminution in the production of a continent would entail an increased load for international transport which, despite the progress made in this respect, would soon exceed its possibilities ; secondly, it is evident that an increased demand on a market shrunk to the extent the international food market has, would have serious repercussions on price levels.

Let us take a classic example, which has been repeated so often that I am sure everyone must know it, and nevertheless the hypothesis, however absurd it appears on closer inspection, is so frequently revived that it is perhaps as well to consider it anew : let us suppose that wheat is no longer cultivated in France, being replaced by more ' profitable ' crops ; let us merely assume, which will appear less absurd, that the production of bread grains in western Europe (the 16 nations plus Germany and Spain) reduces output by an amount equivalent to French production, restricting cultivation to the most ' profitable ' regions, able to stand the competition of a free and unorganized international market, which, actually, would only represent a drop of 20 % in the production of these countries ; merely to maintain the same consumption level the imports which Europe obtained from abroad would have to be practically doubled. It is evident that this would be impossible, and that both the strict application of the King bill and recent experience indicate that these imports would have to be paid for at prices much higher than those which would appear profitable to the farmers of western Europe who had been supplanted.

The reason that the prices ruling on the international market could be much lower than those of the European domestic markets is that production was consumed locally in Europe at prices which at first appeared high. The consumers of wheat exporting countries and those of overseas wheat importers probably do not realize that it is due to the prices paid in auto-consuming countries that they have been able to obtain supplies at such low prices.

Let us be wary, therefore, of asserting that by setting up a European federation of the

west, the standard of living of the populations concerned would be raised. Let us not repeat the mistake of certain friendly propagandists who were convinced that the liberation would bring abundance, while the economic situation with which the liberated peoples had to cope, particularly as regards food supplies, was, as could be expected, frequently worse than that they had known under the occupier.

Just as it was worth while fighting for freedom, so I do not believe that a more ' tragic ' conception of the necessity of organizing a Federation will be an obstacle to its achievement, quite the contrary ; the obstacles which will require to be overcome are not those which are tackled solely for the improvement of the wellbeing of the individual ; as in the struggle against the invader, the feeling of an ineluctable need to avoid disaster appears to me to be a much more powerful force, much worthier of the indispensable heroism. Because of the battle against hunger to the benefit of all humanity, and the consciousness that she is directly threatened to the very foundations of her civilization by this world problem, western Europe must find the courage for the necessary sacrifices, the first being to put herself in a condition to be able to play her part in this great drama.

In effect, western Europe has an important part to play ; a role which may serve as a pattern, because, better than any other continent, she has known how to husband her natural wealth by obtaining from the soil, as we have seen, particularly high yields ; because she has also known how to give her people a standard of living which has only reached the same or a higher level in regions which have much richer natural resources considering their population.

It is the duty of western Europe to play this role, because she is largely responsible for exhausting the riches of the world, either directly, or by those Europeans who have migrated to other continents. Her civilization, her wealth which are now menaced have also cost humanity heavy sacrifices and, as the famous German historian Werner Sombart recalled, " We have become rich because entire races, entire peoples have died for us, continents have been depopulated because of us ".

Now that man is faced with one of the oldest and the most terrible problems of the world, the experience of western Europe should be put at the disposal of all ; on this condition depends the success which alone can save this part of the world and redeem the heavy tribute levied for the development of European civilization.

In fact, we have now come to the end of this period of expansion of capitalism which began with the end of the Middle Ages by the phenomenon so well characterized by that " abolition of boundaries " of which G. Ferrero speaks. The needs of mankind, specially in foodstuffs, necessitate an increase in production, and we all know that there are no new lands to discover for agricultural exploitation ; further, the present crop possibilities are known and the necessary increase in yields — the World Food Survey mentions an increase of 90 % over the 1938 production in 1960 and 110 % in 1970 — cannot be obtained without an intensification in cultivation.

We have found at the same time that civilizations are mortal, as P. Valéry says, and that the regions most suitable, because of their climate, for the development of mankind, the regions which still harbour more than half the human species, are also those where the great deserts of the Northern Hemisphere are to be found (A. Woeikoff). We really feel that we are ' between two worlds ' (G. Ferrero), in this period which Karl Marx called the ' end of the prehistory of humanity '. What was formerly permissible is not so any longer, civilization cannot create new deserts, and mutual effort alone will make the revolution, which will inevitably arise from such a situation, bring the new era into being.

The situation is indeed revolutionary : every revolution is the result, not as it is sometimes suggested, of a desire on the part of the poor and unfortunate for a better existence, but of the realization of the inequality of the conditions which ensue from a technical progress from which a privileged class has benefited to

an excessive extent and which wishes to retain all its advantages in the economic depression which follows the periods of great prosperity. The demand for justice has been the slogan of all social revolutions and this demand was first put forward on behalf of the oppressed by the apostates of the ruling class, rightly convinced that the maintenance of an adequate standard of living cannot be obtained by retaining the privileges of a few, but by an economic expansion to the benefit of all. More often than not, these 'apostates' changed to 'champions of popular rights' because the economic crisis tended to separate them from the ruling class.

In the world of today, all Europe and particularly western Europe including her proletariat, is an aristocracy which is being undermined. If need be, North America and the U. S. S. R. can raise the standard of living by ignoring other continents. In western Europe an adequate standard of living can only be maintained either by a reactionary policy which would tend to maintain the privileges acquired by exploiting, to the profit of Europeans, the wealth still available in other continents, by keeping the consumption level of the population of these continents at a low level, or by taking an audacious and revolutionary part in essential changes.

In either case, western Europe must combine her strength to form a strong federation able to face the other great economic powers of the world on an equal footing.

We now know what should not be done and, above all, that any attempt to solve our problems on the individual level of our respective countries is impossible. A summing-up of the national programs for the economic reconstruction of Europe (including Turkey, excluding the U. S. S. R.) show that, in 1950-51 the European countries contemplate importing from overseas over 168 % of the bread grains, 167 % of the cheese and 145 % of the meat imported on an average during the period 1934-38, and that they hope to export 1,340 % of the potatoes and 253 % of the fish exported overseas in the same period, and count on exporting eggs in the shell to the amount of 105,000 tons, almost equivalent to their net imports for 1934-38. These figures do not appear very promising for the success of these programs which anyhow would not solve the question of the European deficit in the trade in foodstuffs. since calculated in dollars on the July 1947 basis, the situation would be as follows :

	1950-51	1934-37
	million dollars	
Food imports . . .	9,714	10,205
Food exports. . . .	3,636	3,441
Net deficit . . .	6,078	6,764

The relative constancy of these figures indicates that there is little likelihood of effectively modifying the situation unless considerable effort is made by the European countries. This effort necessitates a coordination of economic programs, and, at the very least, an economic federalism.

We also know that western Europe could not depend on herself, even allowing for her territories outside of the continent, especially in Africa, territories whose integration in western European economy is essential to maintain a minimum economic balance.

Lastly, we know that it is neither morally or politically possible for us to choose out of the two hypotheses the one I have termed reactionary. Delaying the fall of our civilization by continuing to live on the misfortune of others is no longer possible, because we have become acquainted with these others and their problems : we can no longer consider them from an abstract point of view, because we know we kill, we know whom we kill : a man, a friend, a brother.

But if we are aware of the situation of mankind in its tragic whole, we also know that technique enables us to dominate this tragedy. While we know that the food production of the world will have to be doubled in fifteen years' time, we also know that, according to W. O. Wilcox, a fifth of the land cultivated could, by the application of the known principles of agronomy, supply the agricultural production prior to the second world conflict. Here would lie the solution foreseen

by the founders of the Food and Agriculture Organization of the United Nations, but let us not labour under any delusions : such a technical revolution, to become effective, requires an economic, and consequently, a social and political revolution. The previous system created a network of profit-yielding monopolies, of ownership of means of production in the strict sense of the term, and these monopolies, this ownership, are threatened by such a far-reaching technical change.

In the cadre of a family economy, an economic system according to Aristotle, changes of this kind are possible because everyone does his part according to his means to the benefit of all, because everyone profits according to his needs. Expenses, investments, consumption are effected according to natural priorities. In a market economy, however, in a ' chrematistic ' system as Aristotle saw it, where the cycle money-goods-money prevails, where the primary objective of production is profit and not the providing for wants, the ruling forces tend to defend the position required and, in consequence, cannot but be opposed to such profound changes in the economic system. It was before these conservative forces that a project like the World Food Board proposed by Sir John Boyd Orr, former Director General of the Food and Agriculture Organization of the United Nations, had to give way.

Such a project was not acceptable for all countries of the world where the interests of international trade exert pressure on the governments. Undoubtedly, however, an agreement can be obtained between more similar economic systems which was not possible on a world level. The Federation, as President Paul Boncour pointed out, is the third attempt at world organization. The first, that of the League of Nations, perished because of the rule of unanimity, the second, that of the United Nations Organizations, is restricted in its activity by the veto — unanimity and veto are the consequences of the principle of absolute sovereignty, that individualism of nations which is just as dangerous as that of individuals, but which, it must be admitted, is due to the marked differences between economic regimes and associated political systems. Within the United Nations — the Charter formally provides for this — as was also possible in the League of Nations, and as would also be possible with any other world system, the nations which have sufficiently similar concepts can federate and build up nuclei for this united world for which we all hope and which past and present experience show cannot be attained by working on a world level.

To bring our project into being, we believe in the necessary revolution, in an ideal of freedom from want, by the justice of a true natural economy ; we also need an authority, federal institutions. De Félice, Luchaire and Hamon have spoken of political institutions, but we also need economic institutions. These institutions should be truly ' international ' and not merely ' inter-governmental ', the name now usually given to those of the UNO. This slight modification in the international vocabulary seems to me to be symptomatic of a more realistic spirit than that of the League of Nations, but at the same time, in consequence, a recession, as regards the ideal, in the international spirit.

For us, an ' international ' organization would be the International Labour Office with representatives of employers and employees working with those of the governments. Some of us had imagined for the FAO, or at least for its world food board, a similar set-up : representatives of producers and consumers at the side of government representatives. On several occasions the French Delegation suggested as an ideal, transported on the international level, the system brought into effect in 1935 with the Central Board of the Wheat Office. Today, however, we have to be satisfied with ' inter-governmental ' organizations for world projects.

Nevertheless, within more restricted federal limits, what is to prevent us from setting up, for social and economic questions, in particular, the distribution of foodstuffs, true international institutions, which we could invest with real powers, similar to those of the Wheat Office when it was established in France

in 1936. If we do this, we will have a true Federal Labour Office, a true Federal Food Board, a true Federal Wheat Office, and not merely, as in the last-mentioned instance on the world level, an agreement which did not even venture to follow the lines of a commodity agreement as defined by the International Trade Charter, which is much less bold than the proposals of Sir John Boyd Orr. The European Federation will be able to show what can be done by international action, it will have no difficulty in encouraging with its hope, in crystallizing by its example the aspirations of the undernourished masses which form over half of mankind. It will then be in conformity with the mission of revolutionary aristocrats who, from the Gracchi to Mirabeau, were the pioneers of a new era. To carry out this mission, the Federation must remain open to all who accept the rules, like those 'franchise towns' of the Middle Ages or the Federated States of America where it seems that for long the acceptance of the Constitution was the sole requirement to obtain citizenship. The day will come when, through the voluntary joining of all, it will replace inadequate world organization.

Although I have stressed this material aspect of the necessity of the federation, the primary need for setting it up, and the natural economy which will have to meet this need, I would not have it thought that I wished to disregard the higher aims of federalism, and therefore, in concluding, I would like to quote from a speech the Holy Father made a few months ago on the occasion of an audience he was pleased to grant to the representatives of the European National Committees of FAO : "How can we not rejoice, Gentlemen, on learning your desire to take into account the postulates of the catholic social doctrine. In fact, far from there being opposition or even only contrast between the catholic social doctrine and the natural social doctrine, the former continually takes into account, in the applications of the latter, the eternal destiny of man, so much so that in this respect we can apply to the Church the declaration of Christ when he affirmed that he had not come to abrogate the law, to change one iota, but to perfect it and crown it. If, therefore, the Church, like her Founder and Head, proclaims that man does not live on bread alone, she has like Himself, the deepest and most loving compassion for the immense throng suffering from hunger".

May these words, which made a deep impression on all who heard them, guide our effort to liberate all mankind, for which a European federation should be, though nothing else, the first step.

THE USE OF ANHYDROUS AMMONIA AS A SOURCE OF NITROGEN

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Anhydrous ammonia is the cheapest source of nitrogen available. The retail price of one pound of nitrogen in anhydrous ammonia varies from 6 to 7.3 cents per pound, while that of solids varies from 10 to 18 cents per pound.

Due to the low cost of nitrogen in anhydrous ammonia, work was started by the Mississippi Agricultural Experiment Station in cooperation with the Tennessee Valley Authority in 1944 to determine its value as a source of nitrogen, and has continued to date [2]. During this period (1) a large number of tests with field crops have been conducted in which anhydrous ammonia has been compared to ammonium nitrate, (2) equipment for handling and applying anhydrous ammonia to the soil has been developed, and (3) farmers have accepted anhydrous ammonia (1947) as a source of nitrogen.

Properties of Anhydrous Ammonia

Liquid anhydrous ammonia boils at 28°F. below zero. It is maintained under pressure which varies from zero at -28°F. to 197 pounds per square inch at 100°F. When anhydrous ammonia is applied to the soil, it combines with the clay and organic matter to form solids. So long as the nitrogen is in the ammonium form it does not leach. In the spring ammonium nitrogen is converted into nitrate nitrogen in four to six weeks. In cold, wet, or strongly acid soils, more time is required for nitrification.

Response of Row Crops to Anhydrous Ammonia

Anhydrous ammonia increased the yield of seed cotton 354 pounds per acre as compared to 277 pounds for ammonium nitrate when applied at the rate of 32 pounds of nitrogen per acre in 18 tests before planting. As a side dressing the increases in yield were 296 pounds of seed cotton per acre for anhydrous ammonia and 313 pounds for ammonium nitrate. The increases in the yield of corn were 16.2 bushels per acre for anhydrous ammonia and 14.3 bushels for ammonium nitrate in 18 side dressing tests. Where anhydrous ammonia was applied six inches deep, the yields of both corn and cotton were slightly higher than where it was applied four inches deep.

Many young plants prefer ammonium nitrogen, while older plants prefer nitrate nitrogen. Young corn makes much more rapid growth with ammonium than with nitrate nitrogen; while young cotton prefers ammonia, the difference is not nearly so distinct due to the slow growth of young cotton. The superiority of anhydrous ammonia for preplanting application to cotton is probably due to less leaching of nitrogen, and to the preference of young cotton for ammonia.

For late application where dry weather followed, side dressing anhydrous ammonia applied five inches deep was much superior to

[1] This paper is based on published reports of the author, F. E. Edwards, and J. G. Hammons.

[2] Prior to our work the Shell Development Company had used considerable quantities of anhydrous ammonia in irrigation water and some has been used on arable soils.

surface applied ammonium nitrate. The difference was due to the ammonia being placed deep enough to be in moist soil even though no rain followed.

Response of Oats to Anhydrous Ammonia

Anhydrous ammonia has been found to be an excellent source of nitrogen for small grains provided it is applied at the right time. When applied before planting small grains for fall and winter forage production, it has been found to be an excellent source of nitrogen.

Where anhydrous ammonia is applied to oats for grain on strongly acid soils (below *p*H 5.0) in October, it has been equal or superior to ammonium nitrate applied in March. However, where soils are medium acid or higher in lime (*p*H 5.5 or above), it is converted into nitrates and much of the nitrogen leaches out before spring. Anhydrous ammonia has been superior to ammonium nitrate for application to oats for grain in February due to differences in leaching of nitrogen.

Equipment for Applying Anhydrous Ammonia

Satisfactory equipment has been developed for applying anhydrous ammonia to the soil. It consists of a 60 to 110 gallon tank mounted on a tractor with the necessary fittings, for regulating the rate of flow of ammonia, and conducting it into the soil. The rate of flow is controlled by use of a valve, two pressure gauges, and orifices, which are calibrated Over 500 unskilled workmen without prior experience applied anhydrous ammonia to the soil in Mississippi in 1947 without a serious accident.

Applying Anhydrous Ammonia before planting. Note transport trailer tank which holds 4100 pounds of nitrogen, which is pulled behind a pick-up truck.

Anhydrous ammonia is stored in tanks with a working pressure of 200 to 250 pounds per square inch, or in Horton spheres, which are refrigerated to a lower pressure, usually to 50 to 60 pounds per square inch. It is transported in trailer tanks which hold 500 to 1000 gallons, or by larger transport trucks.

Use of Anhydrous Ammonia by Farmers

The results of our investigation were made public on March 7, 1947, at which time no equipment was available and little ammonia was in sight. Mississippi farmers applied anhydrous ammonia to over 200,000 acres of crops in 1947, and its use moved into Arkansas and Louisiana. In addition to the above listed states, it is understood that it will be used in Alabama, Illinois, and Tennessee in 1948.

The amount of ammonia used in Mississippi in 1948 will be limited by supply, and only about 400,000 acres will be fertilized with it. The storage capacity for anhydrous ammonia in Mississippi has been estimated to be over 400 carloads by August; one filling of which will be sufficient for 400,000 acres at 40 pounds of nitrogen per acre.

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THE SWISS CHEESE INDUSTRY

by **Oscar LANGHARD**

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I. General agricultural situation and principles of dairy production

1. Because of the external conformation and the chemical composition of the soil, the cultivated area of Switzerland varies greatly in aspect and the dominant Alpine character of the country causes the climate to be just as varied. These conditions favour forage cultivation and pasturage. The many springs and streams of the country together with the immense water reserves of the glaciers ensure constant and regular irrigation.

Only slightly over half the total area of Switzerland (41,000 sq.km.) is farmed (23,000 sq.km.) ; forests cover 9,000 sq.km. and uncultivated land (upper mountains and lakes) the same area, namely 22.6 % of the total area.

In Swiss agriculture the small and medium farms predominate, and by the use of rational methods a high level of production has been reached.

The Swiss farm averages 8 hectares.

Climatic and territorial conditions, therefore, have made Switzerland a pre-eminently livestock and dairy country. Alpine chalets have replaced the nomad dairy system, and cheese factories did not appear in the valleys until the XIXth century. While formerly the cow-keeper combined the work of milk producer, cheese-maker and cheese-seller, today these form three separate occupations.

2. At the same time an endeavour was being made to produce clean and wholesome milk, just as much attention was being given to stockbreeding and the selection of a sound and productive breed of cow. In the Alpine regions, efforts were mainly — if not entirely — directed to stockbreeding.

The Alpine pasturing of young stock has become an essential factor for healthy growth. Thus stockowners in the plain and the valleys board out their heifers during the summer and have them brought back in the winter.

The Alpine pastures are located at an altitude between 1,000 and 1,800 metres, and are owned either by private individuals or by stockbreeding associations.

Swiss animal husbandry today is well organized and managed by a central administrative committee, whose members are recruited from among the directors of the regional associations. Great care is taken in keeping the Herd-Book, and stock shows of all kinds, with the distribution of fairly important prizes, are held at frequent intervals with a view to improving stockbreeding.

3. Before the war, dairy production in Switzerland amounted to 26 million quintals, and represented 38 % of the total income derived from Swiss agriculture. During the war years a larger area had to be cultivated and this caused cattle numbers to decrease by about 12 %. According to the latest stock census taken in April 1948, at that time there were approximately 809,000 cows as against 926,000 in 1939. The average milk yield per cow and per year amounts to 2,600 litres (1938 : 2,900 l.), but now shows a marked tendency to increase as a result of improved forage supplies. The total milk production at present ranges at about 20 million qls. Of this quantity, some 8 million qls. are processed technically, with slightly over half into cheese. The total Swiss cheese production which, prior to the war, varied between 450,000 and 550,000 qls., at present ranges at about 400,000 qls.

4. In 1946, the average annual consumption per caput was 250 litres of milk, 9 kg. of cheese

and 5 kg. butter. In unspecified form (fresh milk or dairy products) the average annual consumption is equivalent to 410 litres of milk (475 in 1938).

II. Swiss cheese manufacture and trade

(a) *Chief types.*

In Switzerland the processing of milk into butter and cheese dates back to ancient times, and mention is made of cheese in parchments of the first century of the Christian era. As has already been stated, however, cheese-making on an industrial scale only began in the valleys in the XIXth century. The grouping of producers into associations has become a general practice. These associations, in most cases, own the cheese-factory requisite equipment. The milk, then, is either sold to a private individual who rents the cheese dairy, or else processed on a cooperative basis by the producers themselves.

At present Switzerland comprises some 2,900 cheese-factories of all types. The majority have very up to date equipment and in general process from 1,500 to 4,000 litres of milk per day. Few cheese dairies deal with larger quantities.

Emmenthaler cheese, commonly called Swiss cheese, is a cooked-curd cheese. Since the term 'Swiss cheese' has been usurped in different countries for imitation products, for many years the cheese made in Switzerland has been protected by the trade-mark " Switzerland ", registered in every country. The characteristics of the Emmenthaler are its weight, 80 to 100 kg. and even heavier, the holes and whitish-yellow colour. It contains 46 to 52 % fat. Because of its innumerable possible uses Emmenthaler is held in high esteem. It is not to be wondered, therefore, that this cheese has been extolled as the " king of cheeses ", it is not only recognized by its shape, weight and holes, but also by the structure and fineness of its texture.

Gruyère and Spalen or Sbrinz are also cheeses worth noting. The former is manufactured chiefly in French Switzerland (cantons of Freiburg, Vaud, French-speaking Berne, Neuchâtel). It is particularly in demand for its very fine texture and flavour. Spalen or Sbrinz cheese is primarily a grating cheese, and is made in the cantons of Schwyz, Unterwalden and Zug. Mention may also be made of Schabzieger, a speciality prepared solely in Glarus Canton. A spicy and very specific flavour is obtained by appropriate fermentation and the addition of ground Alpine aromatic herbs. It is sold in the form of small conical cylinders weighing 100 to 500 grams.

As in the case of condensed products, Crème de Gruyère was first prepared in Switzerland. Mr. Gerber, the present proprietor of the firm Gerber & Co., Ltd. in Thun (Berne Canton), forty years ago initiated a technique which consisted in processing cured cheese into a homogeneous plastic mass, of excellent keeping quality. Today this technique plays an important part in the economy of cheese producing countries.

(b) *Exports.*

The products of the Swiss cheese industry are among the best known export commodities of the world. Their good repute is due to the excellent quality which only a country equipped with a highly developed dairy industry can ensure. Centuries ago this advanced dairy industry had already given Swiss agriculture its special hall-mark. Through fruitful collaboration in dairy production, milk processing, and trade in dairy products, a wealth of experience has been accumulated which alone enables such high quality cheeses to be evolved. The utilization of a highly developed dairy science, the meticulous care taken in collecting the milk, and the strict technical training of the cheese-makers have definitely contributed to this fortunate position.

Emmenthaler is not manufactured in large factories and consequently is not a standardized product. In reality each cheese is a small work of art, the outcome of long ancestral experience and tested technical ability.

World market requirements vary as regards the quality of Emmenthaler. In some countries the demand is for fresh and mild cheese, while in others preference is given to well cured cheese with a strong flavour. Preferen-

ces vary still further in respect of the diameter of the holes, colour and size and weight of the cheeses.

In the cheese trade, the fat content is an important standard. According to the rules of the international Convention on the trade in cheese, a cheese should not be rated as "full cream" if its content in dry extract butyric fat is below 45 %. With the genuine Emmenthaler cheese, this minimum content is guaranteed. Sometimes this limit is even exceeded by a few percent. The same applies to Gruyère and Sbrinz, two other Swiss export cheeses.

(c) *The Swiss Cheese Trade Union.*

The Swiss dairy industry is very thoroughly organized. The Central Union of Swiss dairy producers was established in 1907 and now includes some 140,000 milk suppliers owning in all 700,000 dairy cows, that is, 86 % of the total number of Swiss cows. Since 1917 the cheese-makers have been grouped under the Swiss Union of milk purchasers which now counts 1900 members. The cheese trade is represented by the Swiss Cheese Trade Union and the butter trade by BUTYRA. Besides these main organizations, there are associations grouping soft cheese manufacturers, processed cheese makers and retailers in the dairy trade. The Swiss Milk Committee covers a more general range and its duties consist of improving the quality of dairy products, keeping dairy statistics, maintaining relations with abroad and carrying out propaganda work on milk and dairy products.

The Swiss Cheese Trade Union was set up during the 1914-18 war, and combines into one trade organization producers, cheese manufacturers (milk purchasers) and cheese merchants.

The principles of this organization are as follows :

1. The Central Federation of Milk Producers guarantees at the time the milk is purchased a specific price for cheese for the duration of the purchase contract ; on the other hand, it requires the milk purchasers to hold their entire cheese output — apart from the quantity sold retail — at its disposal at the guaranteed price.

2. When the cheeses are ripened, the Federation sells the entire production of its members to the Swiss Cheese Trade Union.

The Union, through its members, collects the cheese from the cheese-factories and pays the cheese manufacturers the price guaranteed by the Federation.

3. The Union sees to the sale of the cheese at prices fixed in agreement with the Federation.

4. The profits or losses of the Union are shared by the three groups (Federation, Milk Purchasers, Union). The share of the Federation is slightly above the mathematical calculation because of its special position.

III. Conclusion

Owing to the war, the arable land in Switzerland gradually increased from 175,000 to 360,000 hectares. This considerable increase in crops affected dairy production, but not to the extent which might be expected. In fact, the crops provided an additional supply of feedingstuffs of all kinds, and this result was further improved by modern feed preservation methods (ensilage and artificial drying).

In order to render Swiss agriculture less vulnerable in times of depression, Switzerland proposes to maintain a larger area of arable land than before the war. As already explained, this change will not necessarily mean that Swiss dairy production will never regain its former level.

Recently some former markets have been supplied with cheese, in limited quantities it is true, but it is expected that before long it will be possible to increase exports. In this respect, a fact of importance is that the quality of Swiss dairy products has not deteriorated because of the war but, on the contrary, has even improved, which augurs well for the future of the Swiss dairy industry.

Preservation of perishable foodstuffs

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In general, prerefrigeration at about 0° C. by ventilation with a relative humidity of 80 to 90% is effective for many vegetable or animal foodstuffs (Table I).

Prerefrigeration at 6 to 8°C. is particularly suitable for ripe pineapples, avocado-pears, tomatoes, cucumbers and potatoes. A temperature of about 12°C. is used for preserving green bananas, unripe pineapples, lemons and grapefruit. The most appropriate temperatures for the preservation of lemons by circulation of chilled air, relative humidity 85%, are 12°C. (minimum), 14.5° (optimum) and 16° (maximum). Only grapefruit with a citric acid content over 0.5% and below 1%, can be stored at an optimum temperature of 15°C. Oranges require adequate ventilation, humidity over 85° and temperatures of 3° (optimum and 7° (maximum). For green bananas, the humidity should be high and ventilation adequate so as not to leave more than 0.1 to 0.2% CO_2 in the atmosphere. The storage period for oranges is 8 weeks up to full maturity, with a further 6 weeks until over-ripe. This period may be considerably reduced with the use of ethylene.

The supplementary ripening of bananas can be obtained in 4 to 5 days with an optimum temperature of 17° and a maximum of 24°C. This period may be reduced to 2 days by using 1/1000 ethylene.

This ripening catalyzer is also suitable for pears, apples, peaches, plums, tomatoes, pineapples, melons, citrus fruits and for blanching celery when used in the proportion of 0.1 to 1 per thousand. Acetylene has the same effect and can be employed at the rate of 0.2 to 1%. The same result can be obtained on exposing the fruits to ultra-violet rays.

The optimum storage temperature for potatoes is 6°C. At a temperature above 8°, the starch is more or less rapidly converted into sugars which at the same time are used up in the respiration process. On the other hand, with a storage temperature at about 0°, little sugar is formed, but as the respiratory phenomena are checked, the potatoes acquire a sweetish taste like that of frost-nipped tubers.

* * *

It is to be noted that in the United States considerable importance is attached to the complete preservation of dehydrated fruits. They are, in effect, a valuable source of certain vitamins. For instance, dehydrated fresh plums contain up to 5 mgm/kg. of vitamin B_1, 5 to 18 mgm/kg. vitamin B_2, up to 20 mgm/kg. nicotinic acid and a certain amount of panthothenic acid. The ascorbic acid in the fruit is only partially retained on sulphuring prior to dessiccation, but this treatment destroys the vitamin B_1. Peaches may contain up to 200 mgm/kg. of ascorbic acid, with maximum retention at 0° to 4°, and medium at 12°C. It is completely eliminated with storage at a temperature over 25°. The carotene in apricots (30 to 60 mgm/kg.) suffers practically no reduction at 0° and diminishes by half at 12°C.

Storage at temperatures over 25° and a high relative humidity bring about various changes in the fruit in a few months. Fermentation and change in or loss of flavour do not occur at 2-4° with a relative humidity below 80%. Many dried fruits go mouldy at 3-4° when the relative humidity is over 80%. Preliminary sulphuring or storage at 0° prevents browning through oxidation, and mouldiness, but little SO_2 is retained during storage at 25° and over.

Insects are killed at -18° in a few hours. Storage from 1 to 2 months at -20° sterilizes

TABLE I. — *Preservation of perishable foodstuffs at low temperatures.*

Product	Temperature in C.	Duration	Remarks
Apples	4°	max. 6 months	
Pears	0° to 1°	» 6 weeks	
Raspberries	0°	» 1 week	
Strawberries	0° to 2°	» 3 weeks	rel. humidity below 90%
Cherries	− 1 to + 1°	» 4 weeks	
Currants	0°	» 3 weeks	
Gooseberries	0°	» 6 weeks	
Peaches, apricots, plums	0–2°	» 5 weeks	
Grapes	− 1 to + 3°	5 months	rel. hum. 90%, SO^2 disinfection 2 to 3 times a month
Water-melons, mangoes	0° to 3°	max. 3 months	
Quinces	0°	3 months	
Olives	0°	max. 2 months	
Chestnuts	2°	» 6 months	
Oleaginous fruits	0°	long storage, without rancidness or drying up.	rel. humidity 65-80%
Green tomatoes	5°		
Slightly ripe tomatoes	1°	max. 5 weeks	in the light
Carrots	2°	6 months	
Turnips	0°	3 months	
Jerusalem artichokes	0° to 1°	5 months	
Brussels sprouts	0°	6 weeks	
Cabbages and cauliflowers	0°	several months	in the dark
Artichokes	0° to 1°	max. 5 months	rel. hum. 75%
Peas in the pod	0° to 1°	1 month	
French beans, spinach, salad	0°	3 weeks	rel. hum. 90%
Endive	0° to 1°	3 weeks	in the dark
Parsley, celery	0° to 1°	2 months	
Onions	− 2 to + 1°	6 months	rel. hum. 70-80% in the dark
Asparagus	0° to 1°	1 month	in the dark
Mushrooms	0° to 1°	1 month	in the dark
Butter	0°	several weeks	quality deteriorates after two weeks
Pasteurized cream and milk	0°	1 week	
Milk powder	0°	1 year and over	
Cheeses	0° to 1°	several months	deterioration in consistency on thawing for temperatures below − 5°
Fresh meat	0°	max. 3 weeks	
Salt meat	0°	several weeks	
Poultry	0°	2-3 weeks	individual wrapping in parchment paper
Eggs	0°	6 months	
Dried eggs	0°	1 year and over	
Fish	0°	1 week	flesh remains firm up to 3 weeks
Idem	− 2 to + 4°	2 to 5 weeks	

trichinous or taenia larva infested pork. At 0° insect larvae are destroyed or rendered harmless in 6 months or less. Dehydrated fruits stored at 9° and less are not attacked. Dried vegetables should be stored at 0-2°. Flours stored at 1° in a dry atmosphere remain in good condition for several years.

In general, at a temperature of 0° the relative humidity should be 55 to 60%, and of 4°, 65 to 75%. For raisins, humidity should be between 50 and 60%. A temperature of 12° is unsuitable for pears, peaches and apricots. Storage at this temperature for a maximum of 5 months is detrimental for figs and plums, and for about 8 months, with a high humidity, for apples and grapes.

The U. S. Department of Agriculture advocates the compression of dehydrated foods like fruits, vegetables, soups, flours and wheat meals, dried eggs, etc. The pressure employ-

ed varies, according to product, from 70 to 350 kg. per sq. cm. By this means the volume is reduced by 50 to 60% without entailing any loss in quality and change in storage behaviour.

* * *

With fruits, ripening and respiration are accompanied by absorption of oxygen and emission of carbon dioxide, moisture, heat, volatile oils and odourless ethylene up to the maximum stage, after which different changes take place, for instance : fermentation, oxidation, bletting, softening.

Low temperatures reduce the respiration process considerably and slow down most of the ripening phenomena through diminishing the diastasic activity. Transpiration continues despite chilling. This desiccation should be remedied by an adequate humidity of the air. In regard to the emission of volatile oils and ethylene, which are powerful autocatalyzers in ripening, low temperatures affect the latter but little.

Activated charcoal is mainly used for the elimination of ethylene and the deodorization of cold stores. The new KREBSER prerefrigeration process consists in carefully ventilating the premises with air at 6-8° previously conditioned by passing it over layers of growing moss kept moist. The moss is an excellent moisture regulator and also exerts a slight refrigerating action. It completely and immediately absorbs the aldehydes and slowly eliminates, through repeated passing of air, the ethylene contained therein. It is supposed that it also emits a volatile antibiotic.

* * *

A fat, like margarine, keeps perfectly at 7° for 3 months. From the 5th month, the flavour disappears entirely. It becomes unsaleable after 8 months and decomposes after over a year in storage. Much better results are obtained with storage at -2°. At this temperature, some deterioration in flavour only appears after 6 months' storage and the product may be kept for as long as one year. To preserve the qualities and freshness of margarine over a very long period, storage at -10° and -20° is necessary.

* * *

Of the different meats, only beef can be kept in good condition up to six weeks ; cold storage at 0° and a relative humidity of 90% are required. Under the same conditions, pork and mutton can be kept for 2 weeks. The storage temperature should be continually maintained at 0° ; at 2 or 3°, surface changes take place with a considerable spread of mould which can be effectively controlled by exposing the affected meat for a short period to the germicidal action of ultra-violet rays.

Shell eggs keep well for about six months at a uniform temperature of 0°, with a relative humidity of 85% and slight ventilation. The addition of ozone, a few parts per million, to the atmosphere of the store rooms is useful. In general, fresh eggs are coated in mineral or vegetable oil and stored at a temperature of 2 to 5°C. The addition of pentachlorophenol to the oil is advocated as antibiotic.

American modern treatment consists in low temperature pasteurization at a uniform degree for a carefully controlled period in order to prevent coagulation, by spraying with water heated to 57 to 63.5°. This pasteurization destroys the micro-organisms, including the colon bacilli, devitalizes the embryo, and prevents rotting. Drying by chilled air follows, the eggs are then sprayed with a fine coating of oil, and can be stored at a temperature of 20° or less.

* * *

In England, where gas storage started, the preservation of certain perishable foodstuffs in a controlled artificial atmosphere is continually being improved.

Gas storage enables foodstuffs to be preserved for a longer period at higher temperatures, at the same time preventing physiological disorders and accidents. In addition, fruits, for example, do not ripen during gas storage, which allows of a very considerable delay before consumption.

A excessively low oxygen content, favourable to fermentation, should be avoided, as also too high a content in carbon dioxide, the cause of internal browning.

	O_2 %	CO_2 %	Temperature C.	Relative humidity	Duration
Pears	1-5	5-10	0-4		5 to 10 months
Apples	air or 2	5-10	1-5		9 to 12 months
Sour cherries	—	10	0	80-85%	6 weeks
Sweet cherries. . .	air	25	7		
Peaches	air	10	0		same as for ordinary refrigeration
Chestnuts	10	10	0		

In general, the atmosphere is conditioned to contain from 5 to 10% CO_2, 0 to 5% O_2 and 85 to 90% N. Each variety of the same fruit requires specific conditions. Strawberries and plums do not keep in gas storage.

The preservation of fruit juices by carbon dioxide gas pressure is well known. Fermentation is checked by the presence of 1.5% CO_2 at not more than 15°, under a pressure of 7 kg., or at 3° under a pressure of 4.5 kg.

On the other hand, different methods are employed in preserving eggs in an atmosphere containing 1 to 15% carbon dioxide and at temperatures of -1 to 1°. A recent method is to remove the air until a rarefaction of 10 mm. Hg. is obtained, and to pump CO_2 to attain a pressure slightly above atmospheric-pressure in the storage room; the storage temperature will range from 0 to 1° C.

Refrigerated meats can be kept for a long period in a gaseous atmosphere containing 10% CO_2. It is to be noted that frozen salt pork in 99/100% CO_2 does not turn rancid.

As to fish, L. H. Tarr of the Fisheries Research Board reports that it keeps well in the presence of 40 to 60% CO_2 in regard to taste, but that the increased acidity makes the flesh friable. Refrigerated oily fish can only be stored for a long period in a CO_2 atmosphere provided that all the air is removed beforehand. Good results are obtained more easily without the fat turning rancid, by refrigeration of the fish fillets covered with a thin layer of ice containing a small percentage of ascorbic acid or sodium ascorbate.

* * *

The flash pasteurization of liquid foodstuffs is becoming increasingly important. Although in general, microbiological activity can be checked by prolonged heating at 65° or by realtively brief pasteurization at 76-78°, the oxidizing diastases which destroy the aroma, flavour and vitamins, are not eliminated. To do so, a temperature over 90° applied for a very brief period is necessary.

Flash pasteurization prevents caramelizing and a 'cooked' taste. In fruit juices the dissolved oxygen has to be removed. After extraction and filtering, the air is removed immediately by preheating for some ten seconds at 93-95° and spraying or trickling in a high vacuum. Any subsequent fixation of oxygen is thus avoided.

Usually this pasteurization is carried out in 2 to 10 seconds at a temperature varying from 90 to 99° according to the *p*H, while the juice is rotated at a very high speed under a specific pressure. Rapid cooling at the temperature of normal pasteurization, follows. The containers are filled at this same temperature. Sealing, followed by complete cooling, is generally effected under reduced pressure or in an inert gas (carbon dioxide or nitrogen). Tomato juice, owing to the presence of particularly resistant anaerobes, requires flash sterilization at 120° for 30 seconds.

Turbid juices containing particles of pulp have to be homogenized in order to eliminate the divergence in densities, by reducing the size of the particles to 1 or 2 microns. This operation consists in forcing the hot juice

(65°) under a pressure of 350 kg. per sq. cm., through a device fitted with a silver valve. Flash sterilization in about two seconds by compression up to 50 kg./cm² and at a higher temperature of 121-130° is preferred in some cases, particularly for ciders.

It is to be noted that fruit juices treated in this way can be stored even at high temperatures. In order to prevent change in taste and flavour, however, they should be kept at a temperature appreciably lower than that of the atmosphere, the most suitable being 0°.

This mode of preservation has also been employed for milk, cream, buttermilk, cocoa beverages, pectic juices, etc. Milk brought to a temperature of 50° is subjected to a heat of 72° for 15 to 25 seconds. Homogenization is obtained by reducing the fat globules to 0.5-0.8 micron. It should be rapidly cooled to 10° or under. The source of heat may be steam, hot water or electricity.

In fruit juice manufacture, the present trend aims at obtaining an ever more complete juice, that is, more turbid and consistent. Adequate centrifugal fruit crusher-strainers will transform fresh fruit into veritable 'liquid' fruit. There is also a tendency to replace deaeration by the controlled and automatic addition of ascorbic acid. In the United States, glass containers which can be steam sterilized, have been devised. These glass containers or metal cans permit the sterilized filling of fruit juices cooled direct to 10-15°.

* * *

Sterilization by dielectric heating by means of a very rapid alternating field, called electronic sterilization, the main advantage of which is that large quantities are very rapidly heated right through by the sterilization temperature without the organoleptic qualities of the foodstuff being altered, is still in the laboratory stage.

Attempts at employing it on an industrial scale showed that this method would be much more onerous than the current processes and very difficult to carry out. Experiments with fruits and their derivates gave poor results.

Living organisms come in contact with different kinds of vibrations. The normal elastic vibrations which are perceptible to us, but below a frequency of 20 (infraphonic) and over 20,000 periods per second (ultraphonic) no longer give the sound sensation. The particles of the substance traversed by a vibration may be considered as subjected to alternate compression and expansion. The support of these vibrations is the substance itself and the propagation of these vibrations depends on its elasticity.

In brief, ultraphonic irradiation brings about various phenomena : compression waves causing cellular rupture, cavitation, namely, the release of dissolved gases and their specific activation, rise in temperature, activation and acceleration of chemism. The cells undergo intense agitation and peculiar changes take place in the protoplasm. Ultraphonic irradiation affects living organisms such as mice, frogs, fish, infusoria and certain micro-organisms in various little known ways which end in death. The higher the frequency and amplitude the more mortal its effect.

In France, Marinesco has succeeded in economically sterilizing water in regard to colon bacilli, and in checking the lactic fermentation of milk. Many species of micro-organisms, however, are completely resistant to ultraphonic vibrations. The future will show whether the preservation of perishable foodstuffs by phonic irradiation can be put on a practical basis.

Recently in England, the Mullar Research Centre succeeded in fully sterilizing milk by phonic vibrations ranging about one or two microns amplitude. This discovery raises the possibility of sterilizing milk during transport by means of special vibrators operated by the wheels of the vehicle. Satisfactory results have also been obtained with this type of sterilization in laboratory tests on fruit juices.

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Solar light at the level of the earth's surface extends from 2920 Å to 20,000 Å. The wave-length of the yellow light is 5800 Å. Human visibility is limited from 3900 Å (extreme violet) to 7600 Å (extreme red). Beyond this limit is the infrared light which will be discussed further on. On the other side,

there is the ultraviolet light; produced by mercury vapour tubes or lamps, it exerts a maximum fungicide and bactericide action at a wave-length of 2537 Å.

According to A.W. Ewell of the Worcester Polytechnique, complete destruction of colon bacilli requires an energy of 14,000 microwatts second per sq. cm. at a distance of 1.83 m. for one minute, or 4.57 m. for six minutes, 9.14 m. for 23 minutes, 13.71 m. for 52 minutes. To destroy mould on meat and mucors application should last six times as long. Penicillium requires 5 to 15 times the period. Yeasts take slightly longer to destroy than bacteria.

The chief drawback of this method is that the ultraviolet ray lamps also emit a more or less small quantity of rays of 1850 Å, depending on the transparency of the glass. This wave-length generates ozone by dissociation of the oxygen in the air and its instantaneous re-combination ($O_2 — O$). The ozone molecule on coming into contact with micro-organisms, consumes the oxygen in the combustion of these organisms and liberates an atom of oxygen. Many irradiated foodstuffs are rapidly oxidized and decolorized. Fats turn rancid sooner.

W. T. Pentzer, U. S. Department of Agriculture, finds that ultraviolet rays prevent fruit rotting and can be employed during maritime transport, storage and packing by an exposure of 10 minutes at a distance of 15 cm. Inadequate action stimulates the growth of micro-organisms. On the other hand, a sterilizing action may destroy the vitamins and change the taste and flavour to an appreciable extent. In practice, ultraviolet irradiation is only used in the abattoirs during handling and freezing of meats and during the packing of cheeses in order to eliminate surface moulds.

It should be noted that ozone, at the rate of 0.2 p.p.m. by volume, purifies and deodorizes the air, but the hygrometric state greatly diminishes the bactericidal power of ozone. It is very reduced when the relative humidity is over 50%.

* * *

Many innovations — some of them very important — have taken place in the preservation of foodstuffs by the almost complete or partial elimination of the moisture contained therein.

According to Mrak and MacKinney, the following process has been employed in America for the dehydration of meat cut into 5 cm. cubes :

The meat is steam cooked without water for 30 minutes at a pressure of 4.5 kg. or for 50 minutes at 1.5 to 2.25 kg. Unlike pork, beef re-absorbs its juice. In the first case, the liquid formed on cooking the pork should be cooled, the fat removed, and concentrated to a fifth. Afterwards it is added to the meat after dehydration. Continuous rotating driers are used. The meat is treated at 37° and its moisture content is reduced to 10% in two and a half hours. Watts states that preservation can be prolonged and the taste improved by incorporating into the meat, before cooking, cereal flours. The dehydrated meat is packed under pressure and sealed in a vacuum of 50 cm.

By adding an antioxidant, whole milk powder can be kept unchanged for 8 months at ambient temperature.

According to Creuss, fruit concentrates obtained by evaporation under reduced pressure or by slow freezing, can be fixed in dry paste, granular or powder form by the incorporation of dextrose until the moisture content is reduced to 2%.

The dehydration of liquid foods which are not hygroscopic or only slightly so, such as milk, eggs, pectins, can be successfully effected by means of spray-desiccators. Dextrose has to be added in dehydrating fruit juices with a high content in levulose and hygroscopic acids.

The dehydration of liquid foods by ' cryo-concentration ', namely, by slow freezing and the extraction of the ice formed crushed by centrifugation, is a method which has long been applied to fruit juices. It can also be used for coffee extracts, vinegars, beers, wines and ciders. Coffee obtained at 80-85° in 20 minutes extraction is frozen in 5 days at - 6 to - 10°C. After a few minutes centrifugation, an extract containing 38 % dry matter is obtained.

R. GANE of Cambridge University advocates the concentration of beer. He obtained a product containing up to 18% alcohol without altering the taste and flavour. By slow freezing at - 10°, separation of the ice, a further freezing at - 18° and a second separation of the ice, this investigator succeeded in obtaining vinegars containing 13.8% and 28.9% of acetic acid respectively, stout with 12.1 % and 21.55% alcohol, cider with 16.8% and 24.10% alcohol; starting with a malt vinegar containing 7.16% acetic acid, 0.26 vitamin B_1, 8.9 nicotinic acid and 0.1 riboflavin, a cryo-concentrated product with a content of 3.3%, 1.43, 43.5 and 0.51 respectively. Black-currant juice with 13.5% dry matter and containing 1.13 mgm/gm. ascorbic acid can be concentrated by this method to products with 25.4% dry matter and 2.33 vitamin C; 40.4% and 4.83 vit. C; 53% and 6.55 vit. C.

* * *

The dehydration of foodstuffs by infrared rays will undoubtedly increase.

The infrared zone is extremely wide. Mr. DERIBERE, engineer at the 'Compagnie des Lampes', Paris, gives the following classification:

Infrared	Wave-length	Uses
near	7,600– 10,000 Å	photography, spectrum analyses, therapeutics
drying	10,000– 20,000 Å	industrial desiccation, therapeutics
middle	20,000– 30,000 Å	heating by radiation, spectrum analyses, therapeutics
distant	30,000–200,000 Å	idem
very distant	200,000–Hertzian waves	scientific research

Penetrating radiation at 12,000 to 16,000 Å is utilized in industrial dehydration. The radiation energy is converted into calories within the mass of the substance treated. The temperature can be kept fairly low, maximum 50-60°, so as not to alter the quality. The water is eliminated evenly by osmosis without rupture of the cells.

The artificial desiccation of forage crops instead of natural drying is contemplated. Radiation treatment would improve the keeping and baking qualities and germinative power of cereals.

Infrared irradiation is particularly important in the preservation of seed, brewer's barley and flours. Highly satisfactory results can be obtained with vegetables, fruits, mushrooms with the use of industrial equipment consisting of tunnels with endless bands and lamps arranged in quincunx at 30 cm. between axes and 20-30 cm. above the products to be dehydrated.

The fruits and vegetables should not be more than 1 cm. thick, or else should be cut into slices of this thickness. With intense and rapid irradiation the vitamins are adequately retained. Mr. DERIBERE states that better results are obtained by drying in a vacuum or in an inert atmosphere.

Among other known or possible applications, mention may be made of the drying of tobacco leaves, cocoa nibs, edible pastes, beet pulp; the concentration of fruit juices and various syrups; torrefaction of foodstuffs, removal of bitterness in certain grains or flours, toasting of bread, biscuit-making, desiccation of eggs, meat and fish.

Ultra-rapid pasteurization of milk, in very thin sheets, can be effected by infrared irradiation with internal heating at 80° in 4 to 5 seconds.

* * *

The disadvantages of the present system of dehydrating foodstuffs are that

(1) although the first half of the moisture content can be easily and rapidly removed, the remainder requires 2 to 3 times as long with consequent loss in flavour, taste and nutritive value ;

(2) their behaviour on being hydrated again is very unsatisfactory ;

(3) lasting preservation at ambient temperature is far from effective.

On the other hand, the drawback of frozen foods is their considerable weight and volume in handling, stocking and transport.

A combined method, ' dehydro-freezing ', completely eliminating the disadvantages of the aforesaid two processes, has recently been evolved. The Western Regional Research Laboratory of California advocates partial dehydration of the foodstuff before freezing. This method consists in removing half the moisture in fresh foods such as stone-fruits, berries, apples, carrots, green peas and then quick-freezing. These dehydrated quick-frozen foods after thawing can be hydrated again, without exudation and are comparable in every way with frozen products.

C. Birdseye, the originator of the American quick-freezing industry, has experimented with this new system in preserving perishable foodstuffs, on an industrial scale. He has evolved various types of appropriate dehydrators and his process would consist of quick-freezing of the dehydrated product by immersion in a freezing fluid which, absorbed by the foodstuff, may contain salts, vitamins, seasoning, etc.

Mention may also be made of the process which appears to be becoming an established practice in the United States, namely, the dehydration to powder form of liquid foodstuffs frozen by sublimation of ice crystals under a high vacuum. Fuller details are not available.

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More or less lasting and more or less satisfactory preservation by slow freezing and storage at - 5° to - 15°, is gradually being superseded by quick-freezing. Part of this method consists in clearing the critical crystallization zone, which lies between - 0.5° and - 4° to - 5°, as rapidly as possible, that is, in about 30 minutes for vegetable products, under 3 hours for meat and under 2 hours for fish. The product has to be brought to a temperature of - 18 to - 20° throughout and this temperature maintained without variation for the entire duration of storage.

Although quick freezing, contrary to slow freezing, does not affect, or only slightly, the preservation of the organoleptic and biological qualities of foodstuffs, it generally plays a primary part in protecting the texture and firmness of the tissues.

Although the best storage temperature ranges from - 23° to - 30°, at which the drying power of the air is considerably reduced, it is not yet an economic proposition. Industrially, the temperature used is - 18 to - 20° while a very high humidity is maintained in order to prevent dehydration, freeze scorch and shrivelling, and packing material highly impermeable to water vapour is adopted (aluminium-foil, plastic substances, latex, special glass, waxed paper).

The chief enemy of quick-frozen foods is undoubtedly oxidation. Although the oxidizing enzymes (oxidases, peroxidases, catalase, which causes hay flavour, phenolase, responsible for browning) are more or less effectively inactivated at - 18° and the number of micro-organisms gradually diminish during storage at this temperature, oxidation may work havoc during the preliminary stages and on thawing.

Several remedies are employed. For fruits, sugars, ascorbic acid, citric acid are added, and the product is packed under reduced pressure or in a nitrogen atmosphere. Vegetables should always be given a preliminary rapid blanching, either by steam or hot water. Dielectric blanching has been tried out in the United States : the vegetables or fruits are exposed to radar radiation for 0.5 to 2.5 minutes. In the main, it has the advantage of reducing the number of micro-organisms to the minimum, rendering the enzymes inactive and leaving the vitamins practically intact. The expected results are not always obtained, however, as, for instance, in the case of spinach.

Dielectric heat appears to be particularly suitable for very rapid thawing, in a few minutes, of quick-frozen foodstuffs. An effect similar to that of the heat emitted by a high-

frequency current may be obtained by the application of X-rays or cathodic rays, but the price is prohibitive. Animal products may be protected from oxidation by a preliminary soaking in a pickling solution containing ascorbic acid, sodium ascorbate, citric acid or ethyl gallate.

Fish is one of the most perishable and difficult foodstuffs to preserve. Bacteriological action is appreciably reduced by chilling to 0°C. A temperature of - 10° is necessary to paralyze the bacteria, but will not check enzymic action. Fresh fish preserved immediately in ice cannot be kept for more than a week. Salt-water fish, rich in trimethylamine oxide, rapidly emit ammonia by enzymic reduction.

The first outcome of the deterioration of the proteins, chief constituent of fish, is a change in taste and texture through enzyme action. This deterioration is irreversible and is characterized by insolubility and very marked reduction in the property of the proteins to re-absorb and retain water on thawing. A. Banks of the Torry Research Station of Aberdeen considers that the best temperature for this process is - 2.8°C. It is retarded at a lower temperature and checked at - 26°.

Fish can be kept better and for a longer period if gutted. Low temperature reduces oxidation and rancidity. At - 20°C. both processes are checked for 2 to 4 months, at - 30° for 8 to 9 months. On the other hand, dehydration which may cause an appreciable loss in weight, a detrimental change in the texture and elasticity of the tissues, is, according to the same author, intense at - 6° and - 10°; slow at - 20° and practically non-existent at 30°C.

Salt-water fish can be kept fresh in ice at - 10° for a month, and at - 20° for 3 to 4 months. The maximum period for which this fish can be kept without acquiring an unwholesome odour and taste, is from 3 to 4 months at - 10°, and, at - 20°, six months for oily fish and 15 months for lean fish.

Beef keeps well on freezing. Pork easily becomes rancid. Veal is not suitable for cold storage; it rapidly loses moisture and cannot be kept long. The advantage of slow freezing of meat lies in its cheapness; beef can be kept in good condition at - 8° to - 12° for a year, but ice forms to a large extent between the fibre bundles and outside the fibres. The water is not re-absorbed on thawing, whence a considerable loss through exudation.

On the other hand, by quick-freezing and storage at - 18°C., beef can be kept for several years, pork for one year and veal for six months. Quick-freezing causes minute intra-cellular crystallization inside the fibres. On thawing, the water is practically all absorbed by the intra-cellular substance. Some bursting of the fibres depending on the speed of freezing and beginning at about - 18° makes quick-frozen meat much more tender.

Rapid freezing is the most effective means of rendering milk consumption independent of seasonal variations in production. Slow freezing of milk breaks up the emulsion and causes the fat to separate out. With quick-freezing, on thawing, which should be as slow as possible, all the original qualities are retained and the bacterial count is considerably reduced.

R. Guex reports an interesting industrial application of quick-freezing for fruit juices to ensure their preservation without loss and without concentration, in the form of snow, obtained with the use of rotating drum freezers. This method is cheaper than that with carbon dioxide pressure tanks, and both limpid and turbid juices can be treated.

At present, quick-freezing is undoubtedly the best method for preserving perishable foodstuffs. Quick-frozen products compare excellently with most fresh foods in the condition they are usually consumed. Their quality is superior to that of canned foods save, perhaps, in the case of canned pears and fruit juices obtained by ultra-rapid pasteurization.

The author agrees with J. L. Rogers of London in that a marked improvement can and should be attained for quick-frozen foods by packing permitting storage under reduced pressure or in an inert gas.

Progress has already been made in this direction in the United States where special plastic packing material has been devised on an industrial scale. The author does not

consider that a new method of preservation based solely on the total removal of air, and storage in an atmosphere of inert gas is an improvement on quick-freezing. The author found that a process like that of Kovesligethy Rado, to obtain the practically entire removal of air, requires the repeated application of a high vacuum and several nitrogen treatments, before the final admission of argon. Such conditions cause the rupture of delicate tissues and do not render the enzymes sufficiently inactive. Without low temperatures, dielectric heat or infrared radiation, these processes are not practicable.

* * *

Will the atomic age bring a new means of easily destroying micro-organisms and enzymes and these only? The discoveries of Doctor A. Brasch and his American collaborators appear to be revolutionizing the present methods of preserving perishable foodstuffs by low temperatures or heat. These workers have succeeded in designing an atomic disintegrator capable of producing an intense electron radiation, with a frequency of at least 1 millionth second. These rapid oscillations emitted by their 'capacitron' have a specific effect on living or dead matter. It has been found that raw meat, fresh fruits and vegetables, submitted to this irradiation, can be kept without the use of heat or very low temperatures for months and perhaps indefinitely. Such a bombardment of electrons destroys the micro-organisms and, no doubt the enzymes. The effects of the 'capacitron' may be regulated by varying the intensity of radiation. In effect, these investigators found that weak radiation destroys the reproductive capacity of micro-organisms without killing them. Moreover, adequate radiation obtains its maximum effect in depth of the substance treated. There is a possibility that this energy could be used in the treatment of deep-seated cancers, without injury to the healthy tissue.

ITEMS OF INFORMATION

The exclusive drawings which illustrate this Review are the work of the Italian sculptor Francesco Coccia, *Professor of the Faculty of Architecture at Rome University, and Ministerial Councillor of Fine Arts in the City of Rome. He won the competition for the monument to be built in honour of the martyrs of the Ardeatine Caves near the Appian Way.*

NUTRITION

The European Situation and Food Outlook

(*Extract of a study prepared by FAO and published in Washington and Geneva in June* 1948 *under the title* : '*European Programs of Agricultural Reconstruction and Development*').

Calorie Levels.

In 1946/47, calorie levels had declined in almost all countries, the European average being below 2,300 per person per day. In Poland, Rumania, Yugoslavia, and Germany, the daily average was below 2,000 calories. The composition of the diet had also deteriorated. In most countries the supply of meat, milk, and other livestock products was reduced, and in some very severely ; as an exception may be noted the increased liquid milk consumption in Denmark, the Netherlands, and the United Kingdom. Europe's supply of fats and sugar was also much less. In most countries of western and northern Europe consumption of bread and potatoes increased, partly offsetting the reduction in supplies of other foods, and a much larger proportion of the calories was derived from bread and potatoes than in normal times. In eastern and Mediterranean Europe, even cereal and potato consumption declined, so that in general there was no such compensation. Nonetheless, 1946/47 was in retrospect a comparatively favorable year except in southeastern Europe; many countries had fared worse in the previous years, and several countries have had lower rations in 1947/48.

The goals for 1950/51 suggest that, by then, the average calorie supply would have returned to about the prewar level. Although the country data are extremely provisional, it would appear that a calorie level higher than prewar is programmed in Ireland, Czechoslovakia, Bulgaria, Poland, and Portugal, while a lower than prewar level is expected in Finland, Germany, Austria, Hungary, Yugoslavia, and Turkey. The diet in most countries would be better balanced than at present and in a number of cases would show improvement over the prewar pattern.

Individual Foodstuffs in 1950/51.

Total human consumption of *grains* in 1950/51 is expected to exceed the prewar level. Consumption would be increased in such countries as Germany and Austria, where the people are not expected to be able to afford a varied diet, and reduced in countries such as Yugoslavia and Hungary, where the prewar level was perhaps too high from a nutritional standpoint. In Poland, more grain may be eaten in place of part of the former high consumption of potatoes. Norway and Sweden may retain part of their wartime shift from grain to potatoes. In most of western Europe, the wartime increase in *potato* consumption would largely disappear, but some expansion is programmed for southeast Europe, where potatoes have hitherto been little used.

Sugar consumption is expected to increase in many of the countries where consumption was formerly low, while some decrease is expected in some of the countries of previously highest consumption and in Germany and Austria.

Consumption of *pulses* (*i. e.*, peas, beans, and lentils) would recover from present low levels, but not up to prewar, especially in southern and eastern Europe.

As regards fruits and vegetables it appears from preliminary indications that increases are programed mainly for western European and Mediterranean countries, with no great expansion in eastern Europe Since within this latter region almost all of the vegetables and a large part of the fruit are domestically produced, a more pronounced expansion can reasonably be expected.

The European supply of *fats* depends heavily on imports, and in 1950-51 both production and imports would still be less than in 1934-1938. This reduction is centered entirely in Germany, however, which would be consuming one million tons less than before the war. Consumption is scheduled to increase markedly in eastern Europe and Turkey, based on a larger indigenous production of *oilseeds*.

Many countries in Europe are planning to restore *milk* supplies to the prewar level and even beyond, although most of them face difficulties in rebuilding livestock numbers and securing enough feedstuffs. Human consumption of liquid milk is expected to be higher than prewar in most of western Europe and in Czechoslovakia, Rumania, and Bulgaria. Elsewhere it would still be lower than in 1934-1938, although better than at the present time. Consumption in Sweden and Switzerland may be somewhat below the very high prewar level in those countries.

Meat supplies are likely to be less than before the war even if the large import program is accomplished. Consumption will be heavily reduced in Germany and Finland and slightly reduced in certain countries of north-west Europe, whereas it is expected to be above prewar in eastern Europe.

Information regarding *egg* supplies must be considered unreliable for many countries. The available data suggest some recovery, but not back to prewar levels, particularly in southeast Europe. Statistics regarding *cheese* supplies are likewise unreliable, but the general picture shown is of slightly reduced consumption except in France and the United Kingdom. In many countries, substantial quantities of *skim milk* which could be manufactured into products for human consumption are now being fed to livestock.

Fish consumption is scheduled for an increase in most countries. While many fisheries countries are optimistic about prospective catches, it must be emphasized that less favorable conditions affecting available stocks of fish in the sea and an adverse change in the present relatively favorable price situation could reduce landings.

Nutritional Aspects of the Diet.

If the projected production and imports are achieved by 1950/51, average food consumption in that year in certain portions of Europe would not only be far above current levels, but would show some improvement above prewar in the direction of desirable nutrition. This improvement would be mainly in the highly industrialized countries of the Northwest, which were normally the best nourished in Europe. The improvement above prewar would be particularly marked in the increased proportion of the calories obtained from dairy products and from fruits and vegetables. In the rest of Europe, while the diet would generally be materially improved in quantity over the very poor present diets, the nutritional quality would in general be little if any above prewar. Some of the southeastern countries which formerly depended very heavily on bread grain do, however, hope for some improvement over prewar, particularly an increase in calories obtained from milk, meat, and in a few cases fruits and vegetables, with resultant improvement in the proportion of the protein from animal sources and in the amount of natural vitamins and minerals in the diet.

In Germany, the effort to make more total calories available by more intensive utilization of the present limited agricultural resources would result in a substantial improvement in total calories compared with 1946/47 ; but at the cost of even lower quality of the diet than at the present time, at least so far as quality of protein is concerned. In other countries of Europe not able to regain prewar food levels by 1950/51, even if the projections are fulfilled, the changes from the current situation would be generally in the direction of better quality diets. The periodic reports to FAO and the national development plan are all in the direction of improving levels of food consumption over the longer period, even though only a start can be made toward fulfilling this objective by 1950/51.

It is interesting to note the extent to which the scheduled dietary changes are in the direction of the provisional nutritional targets established by FAO. Generally speaking, the changes in northwestern Europe involve increased consumption of milk, fish, fruits, and vegetables, which are precisely the commodity groups in which an increase was advocated. For example, in the Scandinavian countries, where prewar consumption was about 70 kilos of fruits and vegetables per person per year, 1950/51 consumption is scheduled at about 80 kilos ; the nutrition target is about double this amount. In the United Kingdom, the liquid milk consumption is scheduled to increase from 99 to 143 kilos between 1934-1938 and 1951, which almost reaches the nutritional target for that country.

On the other hand, in certain countries of eastern and southern Europe not only are the scheduled consumption levels for 1950/51 less than prewar because of the great disorganization of farming, but in some cases the changes envisaged are not in the most advantageous direction. Cereals con-

sumption, for instance, would be increased in Italy, Rumania, Bulgaria, and Turkey, which were already consuming cereals in large quantities before the war, and consumption of fruit and vegetables would decline in certain countries where the supply was previously inadequate.

The national averages which have been quoted up to this point conceal, of course, considerable differences between different sections of the population. During the present period of shortage, the disparity between rural and urban food standards has been wide; and as long as shortages continue, they will fall mainly on the urban population. Moreover, since farmers are getting good prices for their produce, they can afford to eat meat and other more expensive foodstuffs which formerly they were obliged to sell.

Food preservation

An international Meeting on Food Preservation, organized by FAO took place, at the invitation of the Danish Government in Copenhagen on 11-23 October.

The aim of this meeting was to alleviate the present food shortage by studying preservation and storage of foods with a view to their consumption in good condition at an appropriate time.

The food preservation techniques — in particular freezing and cold storage — have in fact made great strides in recent years. An international meeting of experts, the first to be held on this subject in Europe since the war, will benefit all the participating countries by pooling all their resources of developments, knowledge and experiences.

The delegates had the opportunity to discuss refrigerating machinery, chilling and freezing of all kinds of foodstuffs, construction of cold storage plants, packaging, transportation and marketing of frozen products. They were assisted by a group of top-ranking international technicians, who lectured on all aspects of the subject under consideration.

The European and Middle East member countries of FAO were invited to send delegates to this meeting which was prepared in cooperation with the Danish National Committee of FAO.

Mr. A. H. Boerma, Regional Director of FAO for Europe, was present at the opening session.

Vitamins and potatoes

The technical publication for selected seed potato production 'La pomme de terre française' gives a brief note on vitamins in potatoes. The ascorbic acid content varies according to variety, crop conditions and degree of maturity, harvesting time and storage temperature. The ascorbic acid appears to increase with the development of the tops until maximum growth has been reached after which the percentage decreases. Cultivation in dry soil promotes a high ascorbic acid content in potatoes. The best storage temperature for retaining the ascorbic acid is between 10 and 20°C.

The mode of cooking also affects the vitamin content. When the potatoes are steamed, the loss is slight, while on boiling at least 20% is lost.

In general, freshly dug potatoes have a maximum vitamin content but, as MURPHY points out, while some varieties like the American Sebago, lost it rapidly, in others, for example, Green Mountain, the content increases. In England and Scotland the vitamin C content has been found to decrease from 0.3 mgm. per gram (end of August) to 0.08 mgm. in January.

Nutrition in Poland

(*Taken from Section V 'Economic News from the Danube Countries' in the 'Information Bulletin' of the Hungarian National FAO Committee*)

The Minister of Public Supply in a statement on the supply situation estimated cereal stocks at about 500,000 tons. The bread supplies are ensured by the cereal trade apparatus and by the price-control services. Livestock is considerably increasing, particularly pigs. Meat production has reached the prewar level (19 kg. per caput per annum) and small quantities of pork can be exported already. Prices are stable. The annual milk production available per caput amounts to 200 litres compared with 250 litres prewar. There are considerable quantities of bacon and fat on the market, at fixed prices, the increase in the price of butter being only temporary.

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The British Ministry of Food Bulletin No. 463, 6 September 1948, gives information on the rapid improvement in the dental condition of schoolchildren in the years 1945-47 due to a series of changes in the national diet made during the war. In the period 1945-47 the average increase in the percentage of caries-free or nearly caries-free children was 4.7% per year, whereas in 1929 and 1943 it was 1.4% and 1.95% per year respectively. Under the Welfare Foods Service, expectant and nursing mothers and children under five have been able to obtain increased quantities of calcium and Vitamin D through milk, cod-liver oil and egg priorities. Dietetic improvements affecting the whole population, such as the inclusion of Vitamins D and A in all margarine and the compulsory addition of calcium to flour, have also contributed to the improvement.

Problems of nutrition

A Nutrition Conference of experts from South America was convened by FAO in Uruguay in July 1948. One of the papers prepared by FAO for the Conference gives comments on the ways and means of how to attack the practical problems of nutrition in any country or region. We reprint below the text of this document :

Many countries are faced with vast problems of nutrition. If an attempt is made to attack these simultaneously in all parts of the country, effort may be dissipated and practical results limited or negligible. Further, money and personnel for activities on so wide a scale will probably not be available.

The initiation of the campaign to raise nutritional levels by concentrating on a relatively small area has many advantages. Among the most important is that it will not call for heavy expenditure on the part of governments. However eager governments may be to improve the well-being of their peoples, they are usually handicapped by lack of funds to support even the most desirable developments. No country can undertake programs beyond its financial capacity. Countries can, however, adjust programs to that capacity, the final goal being achieved step by step. The vigorous development of work in a limited ' demonstration area ' provides an opportunity for such a method of approach.

Successful ' demonstrations ' in a limited area will impress both governments and public opinion and help to enlist governmental and popular support for their subsequent extension to other areas.

' Demonstration ' programs provide an opportunity for studying and perfecting practical techniques which can later be used on a wider scale. They are also most valuable as a training ground for workers in nutrition and other fields.

To raise nutritional levels, many problems must be attacked simultaneously. The ' demonstration ' program should cover all the factors which influence the well-being of the family. The cooperation of experts in nutrition, agriculture, animal husbandry, fisheries, sociology, cultural anthropology, and home management, is needed.

In choosing a suitable ' demonstration ' area, various points must be considered. The area chosen should as far as possible be a unit as regards food production and natural resources. A watershed is such a unit, and in all countries there are water-sheds, large or small. The inhabitants of a water-shed area devoted to agricultural production rely for their living on all its natural resources, which include not only pasture and crop land, but also its water supply, which in turn depends largely on the mountainous timberland which surrounds the area.

An integrated program which aims at the development and preservation of all natural resources, and simultaneously at the improvement of the nutrition, health and general well-being of the family, is obviously desirable and is likely to produce results of permanent value. In the field of nutrition, special emphasis may be laid on educating families about child feeding, the preparation of nutritious meals, and the preservation of food by simple means.

AGRICULTURE

Ad hoc Committee on Agricultural Problems

In No. 6 of this Bulletin, on page 502, we reprinted a resolution of the Third Session of the Economic Commission for Europe (ECE), concerning the setting-up of an Ad Hoc Committee on Agricultural Problems of Common Concern to the ECE and FAO.

Since that time, this Committee has held its first session in Geneva, on 8 through 11 September, and elected Mr. Fritz T. Wahlen (Switzerland) to serve as Chairman, and Mr. Imro Sebes (Czechoslovakia) as Vice-Chairman. Representatives from the following countries were present : Belgium, Czechoslovakia, Denmark, France, Italy, Luxembourg, the Netherlands, Norway, Poland, Sweden, Switzerland, the United Kingdom, the United States of America and Yugoslavia. The opening speeches were delivered by Mr. Gunnar Myrdal, Executive Secretary of the ECE and Mr. Norris E. Dodd, Director General of FAO. Mr. A. H. Boerma, the Regional Director of FAO for Europe and Mr. Albert Van Houtte, Secretary of the European Regional Office of FAO in Rome also attended the session. The International Federation of Agricultural Producers was represented by an observer.

The Committee established two Working Parties : one on trade and the other on technical agricultural problems.

We give below a brief summary of the Committee's work :

The Committee, while acknowledging the importance of trade policy, did not consider that policy

in detail at this time. It did, however, draw the "special attention" of the ECE *ad hoc* Committee on Industrial Development and Trade (scheduled to convene on 27 September) to "the fundamental importance of facilitating the increased production and exchange of agricultural commodities and of agricultural equipment in Europe".

Delegations agreed unanimously that "even if certain bilateral agreements are concluded as a result of the deliberations of the Committee's working parties, the work will have more stable and substantial results if it is carried out in common by all interested countries. The Committee considers that the problems presented by the development of trade in agricultural products must continue to be approached on a multilateral basis".

The Committee recognized that the coordination of European agricultural programmes and policies, as a part of the worldwide programmes and policies of the FAO and other specialized agencies, should take into account the "paramount importance of increasing intra-European trade". This is especially true regarding the following essentials to raising European agricultural production: "(*a*) the stability of markets; (*b*) the stability of currencies, and the balance of payments; and (*c*) the prices paid to producers for their products, which should assure them a satisfactory standard of living and, therefore, assure their willingness to produce abundantly".

Much attention was devoted to the general problems militating against the development of European agriculture. The Committee noted in particular the statement of the Polish representative, Mr. Stefan Krolikowski (Chairman of the Committee's Working Party on Trade) that the rehabilitation of agriculture in some European countries had reached the stage where information about the potentialities of stable and long-term foreign markets was essential to future development. In accepting the observations of the representative of Poland, the delegations felt that it followed also that related information on long-term agricultural production programmes and policies should be made available in relation to market potentialities.

The Committee requested the Secretariat to assemble all information that can be obtained on "requirements for goods and equipment of a kind which might be delivered and paid for in agricultural produce within a short period such as one year, and in particular, on the extent to which processing and other equipment of similar types, is required by agricultural producing countries, with a view to the possibility of consolidating orders on the basis of a standard type (it being understood that one of the obstacles to the supply of processing and other equipment is the small size and varied specifications of orders)". Such information would also include: "(*a*) the agricultural products to be offered in exchange; and (*b*) the increased export availabilities which would result from the supply of such agricultural equipment".

The Committee unanimously agreed that "large increases in fertilizers need to be applied, including nitrogen, phosphates and potash". It was noted that "increased supplies of fertilizers might rank high in any program of aiding eastern European nations to expand their agricultural production and food exports; and that due account would need to be taken of such increased needs for fertilizers arising from measures to expand intra-European trade".

After noting the work in this field already under way, the Committee recommended that "(1) investigations be conducted into: (*a*) the nature and amount of essential fertilizers used and needed in the various agricultural systems and regions of Europe; (*b*) the relation of fertilizer prices to the price of farm products, and steps countries have underway to encourage the adequate production and larger use of fertilizer; (2) means be explored by which adequate production and use of fertilizers can be assured, including appropriate price relations between fertilizers and farm products; and (3) that present international activities in connection with fertilizers be reorganized, widened, and intensified, bringing agricultural as well as industrial experts into the discussion, emphasizing the need for prompt action to increase fertilizer production, and giving attention to all types of plant nutrients needed for high food production".

Examining the question of chemicals and pesticides, the Committee found that supplies of standard pesticides now seem adequate, though supplies of the newer products are still short or irregular in some cases. It recommended the examination of the problems of securing uniformity and standardization in the composition of pesticides, and, if it seems appropriate, the taking of steps to develop international agreements to this end.

The Committee found that despite the need for more food in Europe, there is "serious danger that lack of planning and coordination in production, and inadequate arrangements for marketing perishable products, will result in substantial quantities of fish, fruit and vegetables which could be consumed going to waste or not being produced". Such data as are available indicate that European exporting countries are prepared to produce and export larger quantities of many of these products than importing countries are now prepared to import. The difficulties in the sale of these products arise in a substantial part from exchange problems. At the same time the Committee felt that the situation "could be improved considerably" through action with respect to "steps which might be taken by governments (1) to improve the physical facil-

ities for processing, transporting, warehousing, and marketing perishable products ; (2) to improve the methods of their utilization and to reduce costs of marketing ; (3) to educate consumers to the wider use of such products, and (4) to assure larger and steadier markets to producers and exporting countries ".

The Committee urged the examination of measures used by various countries to improve the production, distribution and consumption of such perishable products, and the development of agreement among countries for the wider and concurrent development and use of such measures ; and of the possibilities of inter-governmental measures the these ends.

With regard to agricultural machinery, the experts concluded that steps are necessary (1) to supply the spare parts and components needed to put into use the large amount of tractors and other farm machinery now idle, " especially in Eastern Europe " for lack of such parts, (2) to " rationalize, standardize, and adapt to the needs of small and medium sized farms, machinery production " in line with technical discussions now under way, and (3) to make maximum utilization for agricultural production of all the mechanical and animal draft power available, so that more draft power might become available to countries where there still are not enough horses and tractors to work all their land.

Appropriate recommendations to meet these needs were unanimously adopted, including one that " individual countries in preparing their programs for the production, import or export of farm machinery, provide a proper balance between tractors and tractor implements " and that FAO and ECE keep this problem in mind in appraising production and trade programmes.

Draft animals now exist in some countries in excess of prewar numbers, and mechanization is further reducing the number needed, while in other countries land is idle for want of draft power, the Committee observed. It therefore recommended that (1) investigations be made of steps European countries are taking for the most effective utilization of all available draft power ; (2) of other ways that governments can employ to bring this about ; and (3) " appropriate reports and recommendations be made ".

The discussions of the Working Party on Technical Agricultural Problems brought out the special importance of feed grains. The short supply of feed grains, both domestically produced and imported, has been of one the most important factors delaying the rebuilding of European livestock, the Working Party found. The Committee endorsed the following conclusions of the Working Party : " The solution of this problem involves steps to increase feed production in Europe, steps to enlarge intra-European trade in these products (which may be further developed through the discussion of measures to expand intra-European trade), and steps to secure larger imports of these products into Europe from overseas producers ".

The *ad hoc* Committee, under its terms of reference, was instructed to recommend " the best means of securing the necessary cooperation " on the part of FAO and ECE on problems militating against the development and rehabilitation of European agriculture. The delegations agreed to refer to their governments a form for such collaboration proposed by the Director General of FAO and the Executive Secretary of ECE. Under this proposal, a Committee, to be called the " Committee on Agricultural Problems ", would be established within the framework of the ECE. Arrangements would be made between the Director General and the Executive Secretary whereby the staffs of the two organizations would cooperate in servicing the proposed Committee ; other staff and necessary facilities would be furnished by ECE. This arrangement would be roughly analogous to that between the two organizations with respect to the ECE Timber Committee, which, it is generally acknowledged has worked quite successfully in helping to solve European timber problems.

Under suggested terms of reference for the proposed Committee, it would among other things be " empowered to initiate studies and make recommendations on the best practical means of European cooperation to develop the production of agricultural commodities in Europe and to facilitate the exchange of such commodities ". No action should be taken by the Committee in respect to any country without the agreement of that country.

Mr. Norris E. Dodd, FAO Director General, in presenting the suggested plan to the delegations, explained that agricultural problems could not be considered independently. It does not do any good to increase the supply of agricultural, forestry and fish products, if there are not transportation, storage and markets available. " In the ECE ", he said, " all of the parts of the problem can be considered at once ". The FAO was happy to cooperate in this by furnishing technical staff to the European committee, while continuing to work with individual governments and on world-wide agricultural policies. Mr. Gunnar Myrdal, ECE Executive Secretary, stated that the proposed committee would not " replace FAO, but take up other functions, not now assumed by FAO ", such as developing international cooperation regarding both industrial requisites for agricultural production and the exchange of industrial goods against foodstuffs

A Belgian National Committee for Agricultural Research

(Sent by the Belgian National FAO Committee)

With a view to coordinating the activity of the different centres of Belgian agricultural research, a National Committee for Agricultural Research has been set up at the Ministry of Agriculture, by Decree of the Regent dated 13 February 1948.

The main task of the National Committee is to tighten the bonds which should normally exist between all Belgian agricultural research bureaux and institutions for advanced agricultural instruction.

The Committee will suggest appropriate means for ensuring the rational organization and development of agricultural research, and will guide research towards questions of topical importance.

The popularization of the results and their practical application in the agricultural and horticultural circles concerned will constitute an important organ of agricultural scientific documentation.

This Committee is composed chiefly of representatives of the Belgian agricultural research centres, of the three higher agricultural Institutes, the Institute for the promotion of scientific research in Industry and Agriculture (IRSIA), the technical and economic divisions of the Ministry of Agriculture, pure agriculture and agricultural industries.

News from Switzerland

(Sent by the Swiss National FAO Committee)

The results of the Federal livestock census of last April clearly indicate the effect of the exceptional conditions in 1947 on livestock production. At the time of the enquiry, cattle numbered 1,423,599 head, 24,174 less than the previous year. The number of cows alone fell by 12,872 head. There was also a marked difference in young cattle numbers. This untoward decrease was largely due to the drought of last summer and autumn and, to a smaller extent, to the absorption of manpower by industry and handicrafts. In the course of one year, 3,864 peasants gave up stock-keeping. This situation is all the more to be regretted in that every possible means is being used to make good the losses in Swiss livestock caused by the war. The accomplishment of the reconstruction program is being seriously delayed. Owing to the scarcity of breeding stock, any appreciable increase in utility animals in the course of the next two years cannot be anticipated.

Horse numbers have declined by 5,080 head. This reduction is mainly due to the advance in power agriculture. There are at present some 142,100 horses in Switzerland.

Pigs numbered 766,674, representing an increase of 8% in comparison with the April 1947 figure. Nine hundred thousand would be required to raise the domestic pork production to pre-war level. Numbers will rapidly increase provided feed supplies are adequate.

The smaller livestock were not censused this year. To judge by the quantities of meat on the market, there has been very little falling off in sheep and goat flocks. Poultry-breeding shows a fresh tendency to increase. The number of eggs produced in the country during the first six months of this year was 10% higher than in the corresponding 1947 period.

As regards crops, from February to April 1948, despite the inadequate rainfall in some regions, the drought was less severe than in the previous year for the same period.

Conditions were excellent for spring sowing. The abundant rains in the second fortnight of April stimulated germination, and late frosts, which are relatively frequent in Switzerland and dreaded for the damage they can cause, did not occur. In general, the weather kept fine for haymaking, as May was very dry. In the mountains, however, the long rainy and cold period which began in June seriously checked hay operations. In some regions, the bad weather also affected the cereal crops, causing lodging or preventing the grain from forming normally. Many oats fields were seriously damaged by frit-flies. Vegetables also suffered through the weather, as also potatoes and beets, which looked in good condition at the beginning of June. The yield of early potatoes, however, is still satisfactory.

In the case of fruit, the apple crop will be plentiful. The pear-trees, on the contrary, are not greatly loaded and consequently, yields will be below the average. Owing to the rains, the cherry crop was poor in all respects.

The vines show good development to date. The grape harvest promises to be abundant, but the quality is still an unknown factor.

As to food, the most striking fact has been the complete abolition of rationing. Thus ends an eventful period of Swiss economic history which lasted nearly nine years. The last food commodities to be rationed were rice, flour, and certain fats and oils. Several articles, however, are still distributed to dealers on a quota basis.

War economic measures regarding domestic cultivation of cereals were partly repealed on 1 July 1948. In view of the ever precarious situation of world food supplies and the international commitments which bind Switzerland, however, the use of bread grains either raw or processed continues to be prohibited. At the same time, the provisions of the Federal Law dated 7 July 1932 on wheat relative to the domestic supply and delivery of crops have again been brought into force. It is to be noted that cereal growing is always given official support.

International Meeting on Soil Conservation

A meeting of experts was opened in Florence on 13 September, 1948. On FAO's initiative, European experts on soil conservation had the opportunity to exchange experiences and compare notes.

Twelve top-ranking experts from various countries demonstrated by means of films, slides, lectures, field trips and discussions, the latest technique of preventing fertile soil being washed or blown away, or covered up with sterile soil. These measures have a special significance for mankind today, if the world's population, increasing yearly by some 20-25 millions, is to be adequately fed on the agricultural output of the cultivable land, whose area unfortunately cannot be increased abreast with the numbers of the population.

Various types of soil losses and damage suffered in Europe, and ways and means for dealing with them, such as farm and soil management, soil conservation practices, crop rotation etc. was subject-matter at the Florence meeting.

The surroundings of Florence at the same time facilitated the demonstrations, as there are to be found many varieties of soil types, and classical examples of land improvement and soil conservation.

Aquiculture in Belgium

Hydroponics (growing plants in water instead of soil) has been practised in the United States for glasshouse crops on a commercial scale for some twelve years. In England, hydroponics has gone beyond the experimental stage and is becoming a commercial proposition. In Belgium, similar experiments have been carried out over the last few years, and are discussed by M. Jacques R. Ansiaux in the *Bulletin horticole*, Liége.

In 1943, the National Scientific Research Fund instructed Prof. Marcel V. Homès, of Brussels University, to organize research on this subject and to perfect a technique for everyday use. The result was the setting up of the 'Centre d'Études et de Recherches sur l'Agriculture' (C.E.R.A.) with laboratories and two special glasshouses at present attached to the Plant Physiology Laboratory of the Brussels University. Another research centre has been established at the Station of the National Institute of Agricultural Research in the Belgian Congo, at Yangambi.

Hydroponics is particularly important in supplying the urban centres with fresh vegetables, since the object of this method is to put on the market agricultural, especially horticultural products, equal in yield and quality to the usual products, but cheaper in price. The chief advantages of hydroponics are easier handling of the growth medium of the plant, a more exact dosage of the fertilizer elements essential for the development of the different crops, diminution in the damage caused by fungous diseases and root pests, easier pricking out. On the other hand, the main drawback is the cost of equipment and upkeep. The high cost of equipment, the higher fertilizer requirements and electric power expenditure are the chief obstacles blocking the practical application of hydroponics, particularly as the effect of these expenses on production costs has not yet been determined by industrial experience, at least not in Europe.

Bee-keeping and artificial insemination

The Apiarian Laboratory of Digne, France organized, in August 1948, a course on the technique of artificial insemination of queen bees. This course included lectures on: (1) The anatomy and physiology of the male and female genital apparatus; (2) genetics and selective breeding in apiculture; (3) utilization of the artificial insemination device. A film on artificial insemination taken by Mr. O. Mackensen in Baton Rouge, Louisiana, was shown. Demonstrations of artificial insemination were given and the examinees undertook practical trials.

Restoring land to farming after industrial use

The "Farmer and Stockbreeder" of 25 May 1948 reports a remarkable example of restoring land to farming after industrial use. At North Ashton, near Wigan (Lancashire), a colliery firm adopted the husbandmanlike policy some years ago of removing some 18 ins. of top soil from where they intended to tip. This soil remained apart in a huge heap while shale was dumped year after year. When the shale dump had reached the planned contour, it was graded and re-covered with top soil. Over two thirds of the whole area of about 50 acres was in cultivation all the time the tipping was in process, and within the year it will all be farmland again, since the dumping operation is over. This dual or multiple use of land has become of vital importance for a country in which, during the twelve years before the war, 794,800 acres went out of agricultural use.

News from the Danube countries

(Taken from Section V. 'Economic News from the Danube Countries' in the Information Bulletin of the Hungarian National FAO Committee).

Poland

The spring sowing of cereals took place under very favourable weather conditions, and the pro-

gramme was fulfilled 106%. The potato sowing plan had been exceeded by 9% and the sugar beet sowing programme has been 90% realized. 430,000 metric tons of fertilizer were distributed for the spring sowings.

The bacon exports will amount to 15,000 metric tons this year. A bacon export of about 25,000 tons is planned for 1949. (In the years 1936-39 an average of 20,500 tons of bacon were exported yearly).

About 200 million eggs will be exported this year compared with 50 million eggs exported in 1947. The egg production is rapidly developing and will probably reach the prewar level next year.

The potato supply is favourable and the surplus will be exported.

Rumania

According to data furnished by the Rumanian Statistical Office, 5,501,000 of the 15,872,624 inhabitants of Rumania possess agricultural holdings. The distribution, according to the size of the holdings, figures as follows : 16.4% own holdings of less than 0.5 hectare, 20% of 0.5 to 1 hectare, 26.8% of 1-2 ha., 15.2% of 2-3 ha., 12.7% 3-5 ha., 6.6% 5-10 ha., 1.6% 10-20 ha., 0.4% 20-50 ha., and 0.3% over 50 ha.

The number of agricultural establishments amounts to 3,096,177. There are : 8,767,000 ha. arable land ; 23,700 ha. vegetable gardens ; 1,486,000 ha. mown crops ; 2,429,000 ha. pasture ; 206,000 ha. vineyard ; 124,000 ha. orchard ; 4,830,000 forest ; and 970,000 ha. fallow land.

Cattle and sheep stocks already exceed their prewar numbers. The increase in livestock continues, and it is hoped that Rumanian livestock will exceed the prewar level, both in quantity and quality, this year.

The development in livestock can be seen from the following table :

	1948	1947	1938
Cattle	4,292,000	3,113,000	3,652,000
Horses	944,000	787,000	1,581,000
Sheep and goats	11,513,000	7,338,000	10,451,000
Pigs	1,458,000	1,108,000	2,209,000
Poultry	15,824,000	11,932,000	27,324,000
Bee colonies	495,000	333,000	466,000

Yugoslavia

According to the agricultural part of the Five Years' Plan the area under cultivation will amount to 7.7 million hectares ; the cattle stock will amount to 116% of the prewar numbers, the pig stock 171% and the sheep to 146%. Forest land, which amounted to 9 million ha. in 1939, will amount to 20 million hectares. In order to improve communications, 1,500 km. of new railways will be built. It is planned to construct several thousand new flats.

Particular attention is paid to fruit-growing in Yugoslavia. In 1946, 684,000 young trees were planted and 729,000 in 1947. The government allocated 25 million dinars for the protection of fruit trees.

Bulgaria

From 1 May, the ordinary per caput bread ration has been increased from 300 grams to 350 grams, for heavy workers from 450 to 525 grams, and for very heavy workers (miners, etc.), from 600 to 700 grams. Some types of intellectual workers come into the category of 'heavy workers'. Irrigation works are being built along the Danube which will make possible the irrigation of about 10,000 hectares. Land sown with cotton, sugarbeet and hemp will be irrigated first of all.

In line with the programme, an area of 200 hectares was sown with a new sort of tobacco (Mahorka, *Nicotiana rustica*) for the nicotine and its by-products. The 1948 sowing programme figures as follows :

Cereals : estimate : 3,020,000 ha.

Commercial and industrial crops : estimate : 440,000 ha.

Fodder : estimate : 500,000 ha.

Vegetables : estimate : 230,000 ha.

News from Czechoslovakia

(Based on Official Sources)

Mr Zapotocky, Prime Minister, commenting on the 1948 harvest, said on September 14, 1948 that it could make up for the heavy losses of last year's crop failure in bread and flour, but not in meat.

A report of the Ministry of Agriculture announced that by September 7, 1948 over 99.6 per cent. of all grain had been cut, 96.1 per cent. brought in and 63.1 per cent. threshed. Up to September 11, a total of 68,596 wagons of grain had been purchased. This amount includes 52,091 wagons of bread grain, comprising 28,687 wagons of wheat and 23,408 wagons of rye. This represents 42.35 per cent. of the delivery quotas. 14,743 wagons of barley, being 47.56 per cent. of the quotas, and 1,735 wagons of oats, representing 17 per cent. were also purchased.

Grain deliveries are most favourable in Slovakia, where 60 per cent. of the fixed quotas have been delivered.

The quantities of grain destined for Government purchase for the economic year 1948-49 have been fixed as follows :

	Metric tons :
Czech Lands :	
bread grains	1,000,000
barley	200,000
oats	85,000
Slovakia :	
bread grains	230,000
barley	110,000
oats	13,000

According to a statement by the Minister of Food, Mrs Jankovcova, in July 1948, over 96,500 acres in Czechoslovakia were sown with early potatoes. Deducting a quarter of this for the purpose of raising seed potatoes, there remained for consumer purposes some 72,000 acres, from which a yield of about 300,000 tons was expected. According to an announcement of the Ministry of Food in September 1948, the potato harvest was satisfactory and the surplus of potatoes was estimated at 1000 wagons.

The Prime Minister announced an increase in the flour, edible fats, potato and sugar rations at a Press Conference on September 14, 1948. The increases are back-dated to September 1, except sugar.

Children up to the age of six are to receive 6 kg. of flour, instead of the present 5 1/2, children up to the age of twelve, 10 1/2, instead of the present 10, youths up to the age of 20 years, 14 1/2 kg. instead of the present 12 1/2, and persons above the age of 20, 13 kg. instead of the present 10 1/2.

This increase covers all working people, whether employed in factories, offices or in any other employment. It also applies to all wives of employed persons with at least one child, as well as to widows with children below the age of 20. It does not, however, apply to old-age pensioners.

The Government, deciding on these increases, determined to maintain them until the next harvest.

The Prime Minister declared that it was expected to purchase certain quantities of grain abroad, even if the deliveries were fulfilled.

The quality of flour will also be improved.

The sugar ration will be increased from 1.20 kg. to 1.50 as from November 1, 1948.

The increase will affect the same persons as above.

An additional half kg. of sugar will be issued at Christmas as well as 120 grammes fat to all consumers.

The edible fat ration will be increased by 100 gm. again only to working people, as from September 1.

The potato ration will be increased to twelve kg. a month per person, in contradistinction to the present eight.

There is a possibility that flour and bread might be bought off the ration for higher prices once the basic rations are assured at normal prices.

A new law on afforestation, protective forest belts and construction of new ponds was passed by the Parliament on July 21, 1948. All owners of forests are called to responsibility for proper care and management of the existing forests and for planting new forests or protective forest belts on land not suitable for other agricultural purposes. Afforestation is to be carried out according to plan.

The law has a provision whereby private land may be confiscated for the purposes of afforestation, planting of protective forest belts, renovation of old ponds or setting up of new ones, wherever such measures are necessary for the improvement of climatic conditions of the area.

The seventeenth Congress of the International Co-operative Alliance was inaugurated in Prague, with the participation of delegates of fourteen countries, on September 20, 1948. The debate was opened by the Swedish representative Mr. Thornston Odhe, director of ICA.

IEFC recommends 1948 rice distribution

Recommendations for dividing the world's export supply of rice among claimant countries during 1948 have been made to Member Governments by the International Emergency Food Committee of the Council of FAO. The recommendations, covering 3,180,900 metric tons of rice, include earlier recommendations for the first half of 1948 under which shipments have been going forward.

The 1948 total declared by surplus producing countries to be available for export is above the 2,210,800 metric tons shipped in 1947, but it is still only about 40 per cent of the rice that moved in world trade before the war. Meanwhile, population in South and East Asia has increased, on an average about 10 million persons a year for the past 10 years. Rice is the most important food for the people of these regions, which contain more than half the world's population.

These facts indicate the extent of the unfilled need for rice in many deficit countries. This is further underlined by the fact that the stated import requirements of the rice-consuming areas, as reported to IEFC, totaled 6,110,100 tons for 1948. Thus the amount covered by the recommendations falls short by almost one-half of meeting the total minimum requirements of claimant countries.

Allocations of rice for European countries are not included in the recommendations now before

governments. Agreement was reached, however, to extend to December 31, 1948, the present exception that only limited quantities be shipped to Europe, upon the assurance by exporting countries that such a limitation would stimulate overall production and procurement for rice export.

While rice production has increased over last year, the total is still well below the 1934-38 average of 100,500,000 metric tons. Greatest improvement in production took place in Burma, Siam and Egypt among the exporting countries, and in China among the importing countries. Despite improvement, however, the world rice situation continues to be acute. Not only is production far below need, but other factors are making it increasingly difficult for deficit countries to avail themselves of the limited supplies. Many of these countries find is hard to implement their allocation, however desperately needed, because of lack of sufficient foreign exchange. Some exporting countries, too, are now asking payment in hard currency or, alternatively, in the form of other cereals.

All factors considered, it is clear that tremendous effort by countries, acting singly and in cooperation with other countries, toward improvements in production and distribution must be made if substantial relief is to reach the rice-consuming populations within the years immediately ahead.

Rice cultivation in Camargue

Prior to 1939*, France imported on an average 700,000 tons of rice from Indochina for stockfeed, and 70,000 tons of rice called luxury rice, intended for human consumption, from Italy, America of Egypt. In 1940, all rice imports were stopped. In 1942, rice cultivation which had been abandoned in France was started again over on area of 3,000 hectares, but unfavourable crop conditions and the selling price regulated at half the cost price resulted in the rice area never reaching, up to 1947, 1000 ha. In the course of 1947, a National Rice-growers Association was set up in Arles which obtained a preliminary improvement by raising the price. In 1948, the area sown will probably exceed 6,000 ha., and a crop of at least 20,000 tons can be expected. The rice-growers cooperatives should arrange for drying, stocking and hulling operations. The rice yield in Camargue compares well with the highest world yields. The cost price will depend on the equipment of the rice-growers. Crawler tractors, disc ploughs, bulldozers and mechanical shovels are eminently suitable for use in rice cultivation.

It is considered that, in Camargue, some 20,000 hectares could be grown to rice. This would necessitate first of all a preliminary preparation of the soil and the establishment of an equipment depot. The main difficulty is the procuring of this equipment, but the French Agricultural Engineering Division is already dealing with the matter and has drawn up an irrigation project for the Bas-Rhône which should meet the needs of the rice-growers.

*See *Le Monde*, 23-24 May 1948, Paris, Paul Ricard (information obtained from the 'Syndicat agricole du Bas-Rhône') and Tony Ballu, *Comptes rendus de l'Académie de l'Agriculture de France*, 10/12/1947.

European meeting on farm machinery

A meeting convened by CIGR in cooperation with FAO was held in Lausanne 13-15/9/48 on questions regarding the mechanization of small farms in Europe. 21 delegates from different countries, one observer from FAO and 2 observers from ISO (Int. Standard Organization) attended the meeting. The discussions centred on the results of an enquiry on standardization of adaptation which CIGR had undertaken at the request of FAO, and which aim chiefly to warrant the interchangeability of tractors and mounted equipment of different origins.

Thirty-six proposals were submitted for discussion. Some of these were accepted as a basis for necessary standardization of machinery in small European farms. Other proposals, requiring further study, were accepted in principle, but have to be examined further in regard to their practical application.

The delegates wished to stress that their considerations and proposals on standardization were exclusively intended for small diversified farming and do not aim to modify the present tractor models intended for medium and large-scale farming or specialized work. The proposed standards should contribute to the promotion of new machinery.

The delegates will request manufacturers (when the latter are drawing up new models):

(*a*) to respect strictly the proposed standards as they will be given in the Final Report when they are considering construction of a new tractor for small farming,

(*b*) to consider, whenever they are preparing a new model for medium farming, in what measure it is possible to take into consideration some of the proposed standards.

Agricultural Mechanization in Italy

During an Italian National Congress on agricultural mechanization which was held in Rome at the end of June, Senator Braschi, President of the UMA Association (Utenti motori agricoli) reviewed the position of Italy as regards agricultural mechanization. He stated that on 31 December 1947, tractors numbered 54,745, with 41,096 located in North Italy, 7,766 in Central Italy, 3,950 in South-

ern Italy and 1,933 in Insular Italy. Another delegate to the Congress, Prof. Candura, expounded the factors which limited power agriculture in Italy : the subdivision of farm estates, and the density of the rural population.

New types of planting-machines in France

Under the auspices of the Potato Growers' Federation, tests were carried out at the Grignon National College of Agriculture, France, on 10 new types of planting-machines. Seven of these ten machines were designed for the planting of sprouted potatoes ; five were power-driven machines according to the semi-mounted type, that is, with the point of support on the draw-bar of the tractor ; four drawn by animal or tractor and one exclusively operated by power traction.

Four of the machines were for one row, 5 others 2-row including one which could be adjusted for 4 rows, and 1 for 4 rows. Six had a non-automatic feed system (by hand), 2 were automatic (operator not required on the machine) and 2 had a semi-automatic feed system (automatic but with adjustment control).

' Lightness of mechanical touch ', indispensable in handling seed potatoes since the slightest bruising paves the way for disease, was the principle kept to the fore in devising these new types of potato planters.

Agricultural machinery in Austria

(*Summary of an article by* Mr. Rudolf SANDNER, *published in "Die Bodenkultur", Vienna, July* 1947).

Agricultural machinery has increasingly replaced manual labour and animal draught power, with the result that is was possible to augment agricultural production appreciably during the last world war, despite the absence of 5 million workers. In the U.S.S.R., mechanization of agriculture permitted the establishment of extensive State and collective farms, while, in other countries, for instance in Central and West Europe, it was adapted to the special requirements of small farms and mountainous regions, as in Switzerland.

Austria also started to mechanize farming despite the high cost of machinery. This process was speeded up in 1938 when the Anschluss had the double effect of depriving agriculture of a large number of farm workers who had to be substituted by machines without delay, and, of lowering the tariff barriers between the two countries making German farm machinery 50 and more per cent cheaper. On the other hand, the German administration granted subsidies for the purchase of farm machinery. Mechanization, therefore, was advanced to the maximum extent, so much so that in 1946, in spite of the losses caused through the war, farm machines of all types numbered 342,000 in comparison with 217,000 in 1939 and 122,000 in 1930. The 1946 census statistics indicate that there were three times the electric motors compared with 1930, double the number of combustion engines and sowing machines ; mowers had increased by 150% and tractors ten times. Unfortunately, all these machines were of German manufacture and as, since 1945, it has been impossible to procure the necessary spare parts from Germany, many machines cannot be used and stand idle.

Austria was greatly assisted in reconstruction work by U.N.R.R.A. which supplied not only food and seed, but also agricultural machinery to the value of 5 million dollars. These supplies included 800 tractors, over 100 mowers, 100 binders, 300 horticultural tractors, over 2000 seed drills, 8000 ploughs, nearly 1000 Diesel engines and a considerable number of thrashers.

In 1946, the h. p. capacity of this machinery, in comparison with 1939 and 1930 was respectively 1,031,000 h. p., 574,000 h. p. and 339,000 h. p. (about half electric motors), representing for every 1000 ha. of crop land, 255 h. p., 139 h. p. and 80 h. p. Considered according to region, ranking to the fore both as regards total power and power per 1000 ha. crop land, are Lower Austria and Vienna with 384,000 h. p., Upper Austria with 250,000 h. p. and Styria with 171,000 h. p.

On the basis of ceiling prices in the beginning of 1945, the value of the Austrian farm machinery (that is, the 50 types of machines censused) may be estimated at 600 million schillings. According to present prices (March 1947), which have doubled or trebled and vary greatly from one region to another, and to the depreciation of the machines, the value may now be calculated at 1000 million schillings.

In studying the future of farm mechanization in Austria it should be remembered that it corresponds to a general tendency in modern civilization. It also meets present needs : acting as a substitute for manual labour which has become scarce, improving working conditions in the country, and lastly increasing production. The Austrian peasant is well aware of this today, but he has to be taught how to use the different machines and to make simple repairs.

The mountainous character and climate in many parts of Austria favour forest utilization, pasturage

and consequently stock-farming. It might be thought that these conditions would not be suitable for employing machinery, but the technical progress achieved has extended mechanization from the plain to the mountainous regions. Switzerland has 20,000 motor mowers while Austria with practically double the arable area, only operates 3,000, and consequently there are considerable possibilities in this field. In the plain regions the excessive subdivision of the land and the scattered nature of the plots constitute an adverse factor which can be remedied by the use of small all-purpose machines, the establishment of machine cooperatives and land consolidation. At all events, for field and root crops, the machine is of paramount importance.

A more widespread use of electric power would undoubtedly be another step forward, but two difficulties have to be overcome : the distances to be covered and the shortage of material which is very expensive. Electrification can only be undertaken by the State and, although every effort is made, the means are inadequate. At present 49.4% of the farms have electric light, 30.5% electric light and power, and 32.8% have electric motors. Rural electrification is particularly advanced in west Austria, in Salzburg, Tyrol and Vorarlberg.

Agricultural machinery could be manufactured in the country itself. In Austria there are now 31 large agricultural machinery plants with a total of 3,500 employees, together with a large number of smaller firms of the artisan type. At a meeting organized in March 1946 by the Federation of Austrian farm machinery manufacturers, through the initiative of the Ministry of Agriculture, the output capacity was estimated at approximately 20,000 tons per year. Owing to the shortage of raw material, coal and even electric power during the 1946 winter, only 25 to 50% of this capacity could be attained. For 1947 the Federation drew up an emergency program to meet urgent demands. Austrian manufacturers now produce tractors, but output is limited to a certain number of each type, prices are high and there is a need for agreement between the different firms as to system of manufacturing. Imports, which would be advisable for certain machines and more complicated implements, should, however, be controlled because of limited exchange currency and also to prevent too many types being introduced. In this respect, it is to be regretted that the importation of German machines, which are the best suited to Austrian requirements, are not allowed as it would solve the spare part problem. Neighbouring countries are in a position to supply excellent machinery, but the restricting factor is cost.

At the present moment the prices of industrial products are increasing to a much higher extent than those for agricultural produce. Further mechanization of agriculture depends primarily on a sound price policy which will permit, on the one hand, assisting the farmer by loans and higher income, and, on the other, lowering manufacturing costs by an adequate supply of raw material and a rational production system. This end can be attained by the manufacturers arranging their production programs on a joint basis and with the supervision of the machine testing stations set up by the government.

ANIMAL PRODUCTION

International Conference on Horse Breeding

Convened by the " Nederlandsche Zootechnische Vereeniging " and the four horse-breeding societies :

" de Koninklijke Vereeniging het Nederlandsche Trekpaard " (Royal Society of the Netherlands Draft Horse) at The Hague ;

" de Vereniging tot bevordering van de Landbouwtuigpaardfokkerij in Nederland " (Society for the promotion of agricultural horse-breeding in the Netherlands) at Utrecht ;

" het Noord-Nederlands Warmbloedpaardenstamboek " (Society of the Farm-horse Studbook, in the North of the Netherlands) at Groningen ;

" het Fries Paardenstamboek " (Society of the Friesian Studbook) at Leeuwarden.

Under the auspices of and in close cooperation with the Netherlands Ministry of Agriculture, Fisheries and Food an international conference was held at Utrecht from September 6 to 8, 1948, to discuss the main problems of horse-breeding in its international aspects.

Sixty-three delegates participated at this Conference and represented the following countries : Austria, Belgium, Denmark, Finland, France, Luxembourg, Netherlands, Norway, Spain, Syria, United Kingdom. The Food and Agriculture Organization of the United Nations (FAO) was also represented. The meetings were held under the chairmanship of Mr. Th. C. J. M. Rijssenbeek, Director of the Animal Production Division, Ministry of

Agriculture, Fisheries and Food of the Netherlands. Mr. E. J. Alderkamp (Netherlands) acted as Secretary to the Conference.

I. After careful consideration of the position of the horse in relation to the increase of mechanization in agriculture, the Conference came to the conclusion that the horse still occupies a very important place in the economy of many countries, particularly in Europe.

As there was insufficient information for the Conference to deal with this problem in any detail, it was decided to ask the Food and Agriculture Organization of the United Nations (FAO) to convene as soon as possible an international meeting. This meeting should undertake a thorough investigation of the economic position of the horse in European agriculture.

II. The Conference came to the conclusion that in order to strengthen the position of the horse industry, every effort should be made to initiate improved methods of production and utilization, both to make it more profitable and to grade up the horse stock used for draft or other purposes.

III. Horse-breeding could at this time be made more profitable if every effort was made to avoid the present large annual wastage which occurs through infertility. To this end the Conference recommended :—

(*a*) that all breeding animals should be kept under good hygienic and feeding conditions ;

(*b*) that mating should occur close to the time of ovulation. The spermatozoa of the horse can survive for a period of four days in the mare and only occasionally more. If the mare's heat-period continues for more than four days from the time of mating, she should be mated again. There is also a hormone injection, which can be given to mares having long heat-periods to control time of ovulation, so that matings can be made with the optimum chances of fertility.

(*c*) that mares which return to service after several matings should be examined by a veterinarian ;

(*d*) that it is important to make use of the early methods of pregnancy diagnosis so that mares which have failed to show signs of heat but which are not in foal may have the chance of being mated again in that breeding season ;

(*e*) that stallions having a lower fertility rate than 60% should have an examination of the semen ;

(*f*) that selection of animals for high breeding efficiency should be made ;

(*g*) that artificial insemination can be used to combat some individual causes of sterility in mares and also for the control of venereal diseases such as dourine ; but until methods can be developed to store horse semen, it cannot develop in the same way as artificial insemination of cattle.

IV. To make more profitable the utilization of horses it is necessary to improve the methods of management and the types of harness and particularly the types of carts to be used.

V. To improve the quality and the general level of usefulness of horses, the following measures were recommended :

(*a*) an accurate chronological registration of matings together with control of birth. This registration is useless without correct identification;

(*b*) the first selection should take place on conformation, according to development, strength of build and type ;

(*c*) the inspection on conformation should be completed with an examination of the utility value. This should include fecundity and longevity ;

(*d*) selection of sires should be made if possible on a progeny-testing basis.

VI. To develop a yard-stick for measuring the efficiency of draft animals the Conference asked the organizing Committee of the Fifth International Zootechnical Congress to place this problem on the agenda of this Congress.

VII. Stallions for service should be used only after approval on inspection, only stallions that are registered in recognized studbooks to be admitted.

VIII. The Conference asked its Chairman to forward these recommendations to the FAO asking it to communicate them to the member governments.

Eighth World's Poultry Congress

The Eighth World's Poultry Congress as well as a Danish national poultry exhibition held in Copenhagen, August 20-27th 1948, was organized under the auspices of the World Poultry Science Association by an Executive Congress Committee and special sub-committees representing organizations and societies of the Danish poultry industry. The members of these committees were appointed by the Danish Ministry of Agriculture which sponsored the Congress and the Danish authorities offered their hospitality.

More than 800 members were present at the Congress and many countries sent official delegations, namely : Australia, Austria, Belgium, Canada, Czechoslovakia, Denmark, Eire, Finland, France,

Great Britain, Italy, Netherlands, New Zealand, Norway, Pakistan, Poland, South Africa, Spain, Switzerland, Turkey, U. S. A. There were also Congress members in a non-official capacity from Algeria, Bulgaria, East Africa, Hungary, Iceland, India, Luxembourg, and Sweden. Also many institutions (teaching or research institutions, educational and poultry associations as well as other organizations) were represented by representative delegates.

The Congress held three Plenary Sessions, the first of which was the opening session. At the second plenary session the general reports were read. The third and closing plenary session summarized the work of the sections and made some recommendations. The Presidents of the Congress were Mr. W. A. Kock (Denmark) and Professor James E. Rice (United States) who asked Mr. Termohlen (United States) to replace him as he was prevented from acting as Chairman owing to his age.

The work of the Congress was divided into five sections : I. Nutrition and Physiology ; II Genetics and Incubation ; III. Organization, Breeds and Development of poultry industry ; IV. Marketing and Public Service ; V. Diseases and their control. Besides these section sessions a special meeting was held to study the establishment af international standards for eggs, poultry and containers.

Many demonstrations and excursions were also held to give a picture of the Danish poultry industry to the Congress members. The Congress finished with a three-day excursion tour to show the achievements of the practical and scientific work carried out in Denmark and the relationship between the poultry industry and agriculture in general in this country.

The papers presented to the Congress — about 130 in all — were distributed in a printed form to the Congress members in an impressive volume.

They covered a very large field and dealt with all the aspects of the poultry industry.

At the closing session the Congress made some specific recommendations concerning international questions. It recommended, inter alia, establishing standards and grades for eggs and poultry and for containers which would be suitable for general acceptance. The Congress also considered that appropriate steps should be taken to achieve at the earliest possible moment uniformity in egg-laying competition standards in order to obtain the possibility of comparison of results recorded in the various countries. A third recommendation expressed the desirability of the governments supporting studies on the origin of domestic poultry and of expeditions for specimens of wild breeds of poultry to provide suitable material for crossing and inter-crossing with domestic poultry.

First Meeting of the Preparatory Committee for the setting up of the European Animal Production Federation

The International Meeting on Animal Husbandry which was convened in Zurich on October 8 and 9, 1947 considered that the formation of an European Animal Husbandry Federation appeared highly desirable and recommended that the necessary preliminary work to this end be undertaken. The resolutions of this meeting proposed amongst other things that the preliminary work should be started without delay. Therefore a preliminary committee was set up, composed of delegates from the following countries : Belgium, Denmark, France, Hungary, Italy, the Netherlands, Switzerland and the United Kingdom. The meeting also requested that the FAO Regional Office for Europe assist with the secretariat of the provisional organizing committee.

This request was submitted to the Fourth Meeting of European National FAO Committees (Rome, February 12-21 1948) and this meeting recognized the value of organizing such a federation since it should lead to further development of animal science and improvement of animal production in Europe. It was therefore recommended that the European Office of FAO should provide the necessary secretariat on a temporary basis for the provisional organizing period.

On the basis of this recommendation the European Regional Office of FAO asked the National Committees of the above mentioned countries to name their representatives for the meeting which took place in Milan June 28 to July 1, 1948. The Italian delegate, Ugo Sola, former ambassador, was elected Chairman and Dr. I. Moskovits, of the Agriculture Division of FAO, acted as Secretary of the meeting since he was charged with the preparation and the convening of the meeting.

The meeting drafted the by-laws of the planned European association in all details and this document will be sent by the European Regional Office of FAO through the National FAO Committees to all the European national organizations concerned with animal production. The replies received will be studied and coordinated as far as possible by this Preparatory Committee at a second meeting which will take place in Paris during March, 1949. The definitive text will be submitted for approval to the Constituent Assembly which will meet on the occasion of the Fifth Congress of Animal Production to be held at Paris in October, 1949.

First International Congress of Animal Breeding Physiopathology and Artificial Insemination

The first International Congress of Animal breeding Physiopathology and Artificial Insemination was held in Milan from 23 to 30 June last to examine the different problems on the agenda.

During this period cattle shows were held in the same town, some 500 animals being presented ; exhibitions of various merchandise were also given.

The Congress was opened by Mr Giuseppe Brusasca, Under-secretary of State for Foreign Affairs, and Prof. M. Cottelessa, High Commissioner for Public Health.

The proceedings took place with Prof. R.W. Phillips, Acting Director of FAO Agriculture Division, in the chair, assisted by several vice-chairmen : Prof. A.C. Bruni, University of Milan ; Prof. S. Courrier, University of France ; Prof. L. Grassi, High Commissioner for Public Health, Rome ; Prof. R.M.C. Gunn, University of Sydney ; Prof. S. Ranzi, University of Milan ; Prof. E. Sörensen, Kgl. Veterinaer Og Landbohojskoles, Copenhagen. At the closing session the Congress carried the following resolutions.

The Governments are requested to foster research work on physiology of reproduction and pathology of livestock with special regard to the effective use of artificial insemination. Workers in the various scientific fields (anatomy, animal production, bacteriology, chemistry, genetics, physics, physiology, etc.) should carry on their work with full cooperation both within and between countries. Strong national animal husbandry and veterinary societies should be organized and all facilities given for exchange of new scientific information by means of international conferences and meetings.

A Standing Committee has been appointed to plan such future international meetings in agreement with the national animal husbandry societies, and international bodies such as the European Animal Husbandry Federation, the Permanent Committees of the International Veterinary Congress, International Physiological Congress, International Genetics Congress etc.

The abbreviation A. I. should be internationally adopted to denote artificial insemination.

The following scientists were appointed by the Board of Chairmen of the Congress and approved by the Congress, to serve as a standing Committee on Physiology and Pathology of Reproduction : N. Lagerlöf, (Sweden) as Chairman ; T. Bonadonna (Italy), Secretary ; J. Anderson (Kenya) ; E. Garcia Mata (Argentina) ; R. M. O. Gunn (Australia) ; J. Hammond (Great Britain); G. Lesbouyries (France) ; B. B. Morgan (United States of America) ; E. Sorensen (Denmark), as members.

The seat of the Committee will be Milan.

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The problem of **standardizing feedingstuffs** was raised at a meeting of the Advisory Market Board of the Belgian National FAO Committee. A Sub-Committee was instructed to study the question and to see that the draft decrees submitted to the Department of Agriculture might also serve as a basis of discussion in elaborating an international convention on the subject.

The results of the Sub-Committee's work carried out with the assistance of the technical division of the Ministry of Agriculture, were presented to the Market Board, the Belgian National FAO Committee and to the legal division of the Ministry of Agriculture. In consequence, two decrees have been published : (1) Decree of the Regent dated 10 June 1948 and (2) Ministerial Decree of 11 June 1948, regulating the trade in substances intended for stockfeed (see *Moniteur belge*, No. 178, 26 June 1948). These Decrees establish the legal composition of feedingstuffs and test criteria which will permit an effective control of this trade.

MILK AND MILK PRODUCTS

Cow's milk and tubercle bacilli

M. J. Verge has presented to the French Science Academy a report * on his investigations carried out in France over the last ten years on the presence of tubercle bacilli in milk.

The author effected three series of experiments on 191 samples of milk. In order to detect the Koch bacillus he adopted a process consisting of inoculating guinea-pigs by subcutaneous injection, in the inner side of the hindquarter, of a homogeneous mixture of the centrifuged deposit and the

* *Comptes rendus des Séances de l'Académie des Sciences*, T. 227, No. 8, 1948.

supernatant cream. In the second experiments M. Verge wished to ascertain " in what proportion, under what conditions and under the influence of what factors the milk contained the Koch bacilli and what were the relations between these and authentic tuberculous lesions ". In the third series, he attempted to track the Koch bacilli in the mammary secretion of cows which gave a positive reaction to the tuberculin test (Moussu and Mantoux reaction).

The following conclusions were reached :

" Out of 191 samples of milk of known origin (75) or unknown (116), raw (91) or pasteurized (100) collected either from naturally tuberculous cows or from animals giving a positive reaction to the tuberculin test, only three, that is, 1.57 %, contained tubercle bacilli.

" These results are very reassuring but certain facts, at least as regards the bovine species, should be considered :

(1) The virulence of milk secreted by tuberculous cows is inconstant and irregular, varying according to the extent of the lesions in the infected animal.

(2) Acute miliary tuberculosis, frequently accompanied by bacteriaemia, does not inevitably imply virulence of the mammary secretion.

(3) All raw milk obtained from either clinically tuberculous cows, whatever the location or extent of the lesions, or from animals giving a positive reaction to the tuberculin test, should be prohibited for use as food.

(4) The question of tuberculosis contagion through milk, despite its urgency, is only one of the aspects of the much more universal problem, ever in abeyance, the gigantic problem of hygienic milk production.

(5) Lastly, M. J. Verge adds, it should be borne in mind that : a wholesome milk can only be obtained from healthy animals kept in healthy stable conditions and placed under the direct control and close supervision of the veterinary surgeon ".

Milk distribution in England

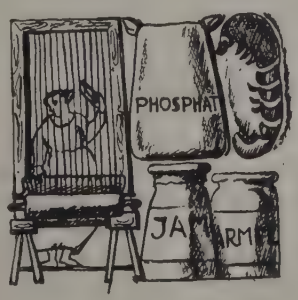
In England, the Report of the Williams Committee on Milk Distribution has now been issued to the public as a Blue Book (Cmd 7414). This Committee, which was set up by the Minister of Food in October 1947, has examined the distribution of milk from the point at which the milk leaves the farm to the point at which it is received by the consumer or manufacturer. The report urges the government to go " further and faster " towards an overall compulsory heat treatment of milk than it has so far been decided to do. It is recommended furthermore that persons handling milk should be regularly examined for milk-borne infections, that milk passing through depots and dairies should be tested at least every two weeks, the sale of loose milk prohibited, and processing and bottling completed on the same premises. The report also recommends that the charge for processing milk should be limited and small dairymen encouraged to amalgamate and operate a joint plant.

Price problems, retail distribution, control of deliveries and establishment of a Central Authority to control all, or part of, the milk industry are also examined in this document.

Exhibition of Italian national cheese

A national exhibition of Italian cheeses was held in Modena from 26 September to 3 October. The object of this exhibition was to advertise these cheeses and, in particular, to renew and increase the export trade which was interrupted because of the war. Attention was centred mainly on quality so as to enable Italian cheese to meet foreign competition. To this end, besides the exhibition, technical, scientific and trade lectures, in which the foreign delegations took part, were organized. It may be mentioned that prewar (1938) exports of ' Grana ', Parmesan type cheese, amounted to 40,000,000 qls., and of other cheeses, to 50,000 qls. In 1947, these exports were 1,500 and 15,000 qls. respectively. The principal importers of Italian cheeses before the war were North and South America, France, England, Belgium, Switzerland, Greece and the countries of the Middle East.

AGRICULTURAL INDUSTRIES



Fruit juice producers

The first International Congress of Fruit Juice Producers was held in Paris and attended by delegates from Algeria, Union of South Africa, Argentina, Belgium, Canada, Chile, United States,

Spain, Finland, Italy, Lebanon, Morocco, Palestine, Netherlands, Portugal, Sweden, Switzerland, Czechoslovakia, Tunisia and Turkey. All the items on the agenda were decided: (1) Union of all fruit juice producers; (2) inventory of international production; (3) doctors' opinion of the therapeutic and hygienic food value of fruit juices; (4) a comparative study of the different laws; (5) comparison of methods of manufacture and processing. It was also decided to set up the International Federation of Fruit Juice Producers to continue the action started by the first Congress. This Federation will establish close cooperation between the producers of the different countries, arrange for the exchange of information on the different techniques and legal measures and organize international congresses and the second, if possible, in 1949.

Among the very interesting reports which were read, that of Prof. Boulet, Deputy and Professor at the School of Medicine in Montpellier, dealt with the third item, on the food and therapeutic value of fruit juices. He stated, *inter alia*, " that fruit juices because of their high carbohydrate content are an energyzing food, and through the water and mineral salts contained, they have a restorative action. The water serves in the elimination of the waste products. The mineral salts supply the minerals and calcium needed by the system.

" Fruit juices aid in maintaining the food balance by their alkalinizing action (the organic acids, after their combustion in the system, are converted into alkaline carbonates); they constitute a functional stimulant, as ionized liquid with catalytic function. Vitamins play the same role of powerful stimulants.

" It may be concluded that fruit juices represent the sum of four serums: (1) sugared serum, (2) stimulating serum, (3) alkalinizing serum, (4) living serum.

" These properties of fruit juices can very effectively be used for sick persons and convalescents.

" As a food, fruit juices are unrivalled. Their food value is enhanced by their moral value. They are not deteriorated chemically and cannot exert any degrading action morally ".

International Seed Crushers' Congress

At the Congress of the International Association of Seed Crushers held in Brussels on 17 June 1948, Mr. J.C.A. Faure, chief buyer of oils and fats for Unilever Ltd., gave an address, at the President's invitation, on the world's fats and oils situation. Quoting Sir John Boyd Orr's warning on the world food position, he said that the prospects with regard to oils and fats did not substantiate the optimism which has been growing abroad for some months. World shortage of cereals would mean less feed for animals and consequently restricted production of animal fats.

After extensive journeys to the Far East, and other investigations, he had had to revise his estimates of the world exportable surplus of the principal oil-seeds, oils and fats for the next few years. The totals for 1948 are now 233,000 tons, those for 1949 232,000 tons and those for 1950 278,000 tons lower than the estimates for the same periods of a year ago. The most serious problems in his opinion were the alarming increase in the world's population and the tendency of nations to improve their standard of living. In order only to maintain today's low rations and low per capita consumption, the present production of oils and fats should be stepped up to 20.3 million tons, that is to say, 2 million tons more than it is now: should, however, the pre-war consumption be resumed, we should need in ten years' time 6.5 million tons more than are produced now. Even the totals needed to provide the prewar consumption rates were alarmingly high, continued Mr. Faure. Were oils and fats the only commodity at present in short supply, the targets might be possible to attain but with a general food shortage looming ahead, the prospects did not look promising. Even should the British East African Groundnut Scheme be in full operation, it would yield only between 250,000 and 300,000 tons of oil, which is but a fraction of what is needed; therefore the speaker stressed the necessity of working out more of such schemes.

Concluding his address, Mr. Faure said that there were yet vast areas which could be opened up to cultivation of groundnuts and other oilseeds, and of oil palms, and that a worldwide campaign against waste would save a huge tonnage of oils and fats.

(Public Ledger, 18 June 1948)

Meeting of the International Sugar Council

The International Sugar Council met on 23 and 24 August 1948; the representatives of 15 governments, observers from four other States and the United Nations and FAO attended.

The Council examined the report of its Statistical Committee on the situation of the world sugar market.

Supplies on the open market were estimated to be 4,913,000 metric tons on 31 August 1948. The requirements of this market at the same date were calculated at 4,750,000 m.t. The 1949 figures are provisional as they depend on the Cuban crop; they will be published in the Statistical Bulletin of the International Sugar Council.

Proposals regarding the immediate revision of the International Sugar Agreement of 6 May 1937

were discussed at this meeting. The general opinion of the Council was that under the present circumstances an immediate revision was not desirable, and the Council passed the following resolution :

Taking into account the opinions and views expressed by the delegates at the meeting regarding the difficulties entailed in working out another agreement at the moment, it was decided to appoint a committee for the purpose of :

(1) studying the unstable sugar market situation in relation to the necessity or expediency of negotiating a new agreement ;

(2) reporting to the Council at the first opportunity on its investigations and recommendations concerning the basis of a new agreement for the future.

Each delegation to the Council will be represented on this Committee and the governments represented on the Council by observers may send observers.

It was also decided to recommend the governments signatories to the Protocol extending the Agreement to 31 August 1948, to sign another Protocol for extension to 31 August 1949, with the reserve that if a new Agreement is put into force prior to that date the Protocol will then terminate.

The Council authorized its Secretariat to resume the monthly publication of the Statistical Bulletin which, since the war, only came out quarterly.

(*La Sucrerie belge*, 1948, Nos. 1-2).

Use of Sugar Industry by-products

A report on another use of sugar industry by-products is given by P. Monthéard and M. Raucourt in the *Comptes rendus des Séances de l'Académie des Sciences française* (19/5/1948).

Starting with molasses vinasse and working on aggregate characteristics, through simple conversions, "good quality adjuvants for spray parasiticides" can be obtained.

After having separated the amino products in the vinasse from the mineral salts by treatment with sulphuric acid in the presence of ethyl alcohol, the experimenters obtained a viscous liquid completely soluble in water and producing a copious froth. They attributed the chestnut colour of this liquid to glucic and apoglucic acids derived from the action of ammonia in the presence of invert sugar in an acid medium. This liquid enables mineral, wood tar, coal tar and schist oils to be emulsified. These properties oriented the experimenters towards the preparation of products for the agricultural parasiticide industry. The new adjuvants show a marked superiority over some similar substances already employed in France.

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The XXIst **Congress of Industrial Chemistry**, which included a group for the study of food and agricultural industries, was held in Brussels from 12 to 19 September 1948. This group covered 5 sectors : alcoholic fermentation industry, food industries technology, agricultural technology, sugar industry, canning and refrigeration industry. Congress members were invited to visit the International Exhibition of Pure and Applied Chemistry in Charleroi.

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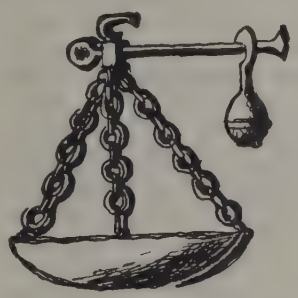
The XXVth **International Exhibition of Power Agriculture** at Senlis (Oise-France) dates from 30 September to 30 October 1948.

110 tractors, power-driven cultivators and winches are being shown by eight different countries. Practical demonstrations – stubble-ploughing, subsoiling ploughing, etc. – are being given continuously.

ECONOMICS AND MARKETS



Commercialized Production and Total Production in Italian Agriculture

(by Luigi Bruni, *Technical and Economic Division of the Italian National Bureau of Agricultural Statistics and Economy*).

It is very interesting, from many economic aspects, to be able to estimate the extent of commercialized agricultural production in comparison with the total agricultural production, which comprises both commercialized and non-commercialized production, the latter being directly consumed by the consumer and never reaching the market.

This estimation is essential in determining the elementary price indices of each crop product in drafting a general price index of the products sold by the farmers. Agricultural production differs from other branches in that a considerable part (and in some cases the major part) remains outside monetary economy. Consequently, determining the price indices of agricultural products according to the quantities produced is of less practical value than if the commercialized quantities are used as a basis.

Secondly, estimation of agricultural commercialized products is important in order to differentiate the value of agricultural production into two categories : the value of the produce consumed direct by the producer and the value of commercial-

ized products. This differentiation naturally also applies to the value of the total national production and is of cardinal importance for the monetary problem as the volume of non-commercialized production does not directly affect the exchange equation.

Thirdly, the extent of non-commercialized agricultural production (deduced by the difference between total and commercialized production) gives some indication of the economic and particularly the food conditions of the rural population which subsists almost entirely on local produce.

This brief note is a modest statistical contribution to the study of the relation between agricultural production and commercialized production in Italy. As is known, in this field few data are available and these have not been closely examined. De Polzer (Statistiche agrarie, Giuffrè, 1942, pp. 197-198) states :

" To serve as a means of indicating the agricultural market trend and of calculating farm revenue, price tables need considerable supplementing. In these tables only the quantities exchanged on the market are given, and only in a few cases correspond to the quantities produced. In this respect agricultural statistics are, in general, still somewhat behind, and consequently do not publish the very approximate data collected with a view to procuring the indispensable elements for determining prices in establishing index numbers. Investigations in regard to the quantities of the different products supplied to the market, in order to ascertain the chief markets for each product, are generally inadequate, as these proportional quantities vary appreciably according to the extent of the crop harvest. Nor is the other system, consisting in considering as constant the quantity of a certain non-commercialized product to be deducted from the production of the subsequent years, very reliable owing to the changes which may occur in consumption and in delivery quotas, the latter being fixed, in many regions, by the growers themselves ".

More recently, FAO experts have noted, in regard to the problem which interests us (Five Technical Reports on Food and Agriculture, p. 305) :

" To be be able to determine the ratio between commercialized production and total production, there are still many difficulties to be overcome, such as differences in definitions, conversion factors, etc. "

I have attempted, despite the difficulty in drafting accurate statements in this respect and the complexity of the problem, to elaborate the statistical data published in the well known work of Prof. Albertario " La situazione economica della agricoltura italiana – Primo contributo, R. E. D. A., 1947 ". As is known, this work furnishes an abundance of statistics and, in effect, is the sole source of systematic data on Italian agriculture after the war. The only drawback of this publication is that few of the figures which serve as a basis of many of the theses and conclusions given in the text are published.

In my opinion, Prof. Albertario's study provides sufficient data to indicate, at least for a preliminary estimate, the statistical ratios between commercialized production and total production for the main farm products.

Production prices and the quantities produced, for the chief crops, were noted for the period 1940-1946 (pp. 134-137) and the author has calculated the values for commercialized production according to category (cereals, pulses, etc., pp. 172-173). It would have been easier to have, already calculated, the values of the total production at current prices, and those of commercialized productions for the different specified products, instead of for the different categories. I have endeavoured, however, as far as possible, to supplement by my own calculations this ' statistical avarice ' in the publication and elaboration of data. Consequently, I have calculated * :

(*a*) the values for each of the different total productions at the current prices of the year ;

(*b*) the values of the categories of products corresponding to those for which Prof. Albertario gives the value of the commercialized production ;

(*c*) the per cent ratios between the values of the commercialized production and the total production, ratios which are naturally equal to the ratios between the commercialized quantities and the quantities produced, the values having calculated in both cases with the same prices (production price in current lire). The results of these calculations are given in the following table (p. 550).

Besides the categories considered by Prof. Albertario, my calculations have also been extended to categories of food and other products (including both vegetable and animal products) which in my opinion, are particularly important.

These preliminary calculations induced me to ascertain the statistical relation between the ratio of the commercialized production in percent of the total production and the level of this same total production. In general, and particularly in regard to Italian agricultural economy and other similar agricultural economies, this relation will naturally be represented by a function increasing at the same time as the production level. The higher this level, the greater will be the ratio of commercialized production to total production. In effect, direct consumption by the producers,

* The very difficult calculations and the graphs were effected by Mr Franco Canofari, agricultural expert, to whom am greatly indebted.

TABLE : *Ratio between total agricultural production and commercialized agricultural production in Italy* 1940 *to* 1946.

(Total production = 100)

	1940	1941	1942	1943	1944	1945	1946
Cereals	51.1	50.8	30.1	45.8	47.6	26.1	38.3
Pulses	46.3	47.2	46.6	34.2	30.8	30.4	45.0
Potatoes and leaved vegetables	60.7	63.8	68.5	57.1	56.8	54.0	48.9
Fresh fruit	73.9	73.8	71.9	75.2	57.7	73.9	56.7
Dried fruit	81.0	81.5	78.5	44.1	73.2	75.5	66.5
Citrus fruit	82.7	83.0	82.7	83.1	81.9	78.6	69.3
Wine	65.0	65.0	65.0	57.1	56.0	65.0	60.0
Oil	67.8	76.8	72.5	67.0	67.0	67.0	44.8
Vegetal food products	58.2	60.7	60.5	54.0	54.0	50.6	48.2
Other vegetal products	98.5	92.4	96.9	89.4	47.5	86.0	98.3
Total vegetal products	61.0	62.7	62.3	54.8	53.8	51.3	49.6
Animal food products	72.3	72.0	68.7	66.0	69.5	67.1	72.1
Other animal products	95.4	93.3	94.2	85.7	84.3	87.3	91.4
Total animal products	73.5	73.0	69.7	66.6	69.8	68.0	72.7
Total food products	62.6	64.3	63.2	56.7	57.5	55.5	54.7
Total non-alimentary products	97.8	92.6	96.1	88.4	54.9	86.6	96.3
GRAND TOTAL	68.4	65.9	64.7	57.5	57.5	56.3	55.9

owing to the relative want of flexibility in their diet, does not diminish in proportion to the reduction in production. There is no doubt, however, that many other factors, which cannot be treated here, inevitably influence the ratio between commercialized production and total production, and among these factors, mention should be made of the relative market prices and the keeping quality of the different products, the prices of agricultural produce and those of the products consumed by the farmers, the need or desire on the part of the farmers for ready money, the volume of foreign trade, the proportion and extent of the rural population.

Production level, however, appears to have the greatest influence on the ratio between commercialized production and total production, possibly because the other factors vary less. This is confirmed by the calculation explained below.

The production levels were obtained from production indices 1934-38 = 100, calculated from the figures given by Prof. Albertario (p.81). These production levels (x) were plotted on a series of Cartesian diagrams, as also the corresponding per cent ratios between commercialized production and total production (y) for each of the 7 crop years considered in the Albertario investigation. It is true that this was an extremely troubled period because of a very severe economic and technical crisis, but for this very reason it offers a wide variation in production levels.

To obtain an idea of the course of the phenomenon, I have interpolated between each series of points a straight line according to the square minimum method. The right lines have the following equations (the coefficients were rounded off to the second decimal point for convenience in calculation) :

(1) Cereals . . . . . $y = 0.58 + 0.49\,x$
(2) Pulses . . . . . $y = 22.24 + 0.30\,x$
(3) Potatoes and leaved vegetables . . . . . $y = 30.70 + 0.28\,x$
(4) Fresh fruit . . . . . $y = 50.93 + 0.21\,x$
(5) Dried fruit . . . . . $y = 33.40 + 0.50\,x$
(6) Citrus fruit . . . . . $y = 65.10 + 0.17\,x$
(7) Wine . . . . . $y = 53.55 + 0.10\,x$
(8) Oil . . . . . $y = 39.98 + 0.41\,x$
(9) Vegetal food products . $y = 5.80 + 0.61\,x$
(10) Other vegetal products. $y = 87.64 + 0.06\,x$
(11) Total vegetal products. $y = 22.72 + 0.40\,x$
(12) Animal food products . $y = 62.81 + 0.08\,x$
(13) Other animal products . $y = 72.61 + 0.19\,x$
(14) Total animal products . $y = 62.25 + 0.09\,x$
(15) Total food products . . $y = 22.14 + 0.45\,x$
(16) Total non-alimentary products . . . . . $y = 86.70 + 0.07\,x$
(17) Total agricultural products . . . . . $y = 34.63 + 0.30\,x$

The reader can easily interpret these results within the above-mentioned limits and considering in each case the degree of adjustment of the right lines interpolated in the original data. It is to be noted that :

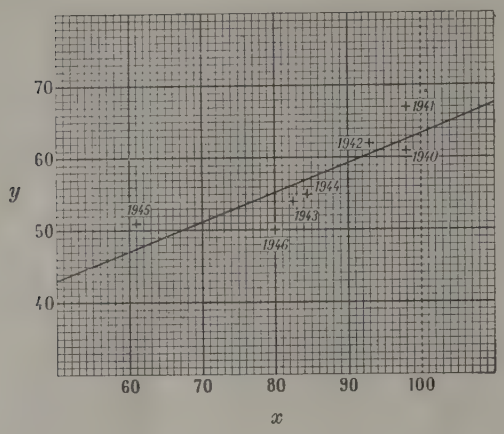
(*a*) The production level was chosen as independent variable as it is probably a better basis

GRAPHS: *Total production and commercialized production in Italy from* **1940** *to* **1946.**

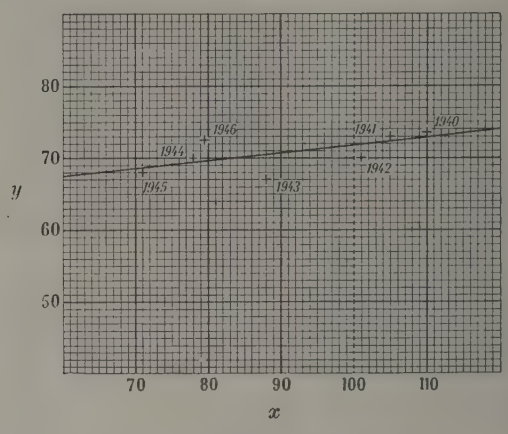
x = production level (1934-38 = 100)

y = commercialized production in percent of total production

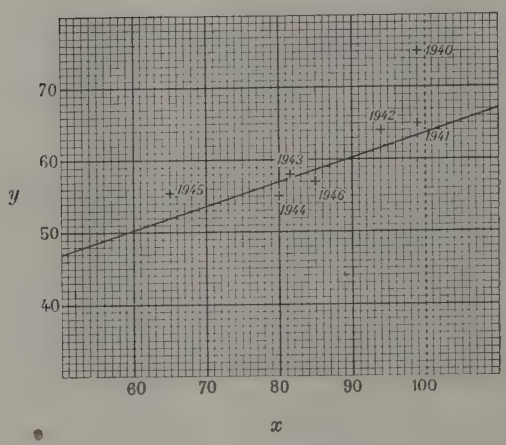
1. – TOTAL VEGETAL PRODUCTS



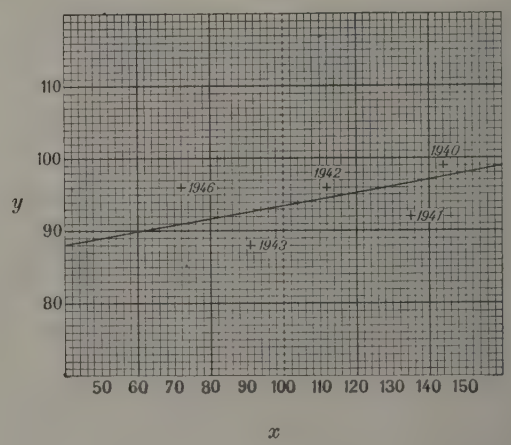
2. – TOTAL ANIMAL PRODUCTS



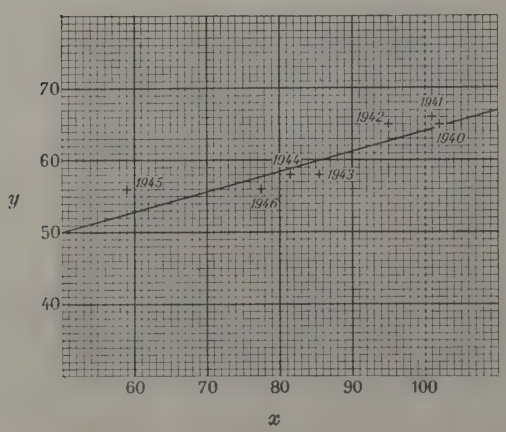
3. – TOTAL FOOD PRODUCTS



4. – TOTAL NON-ALIMENTARY PRODUCTS



5. – GENERAL TOTAL



than the ratio between commercialized production and total production. This is why the interpolated right lines render minimum the sums of the squares of the differences between the commercialized production expressed in effective per cent of the total production, and the interpolated per cent.

(*b*) The known terms of the equations cannot be interpreted economically because the interpolated right lines naturally have no value for production levels deviating from the limits of variation of the independent variable.

(*c*) On the other hand, the angular coefficients of the interpolated right lines are very important as they represent the average variation of the ratio between commercialized production and total production when the production level varies. On ar-

ranging the values of these coefficients in ascending or descending order the result is :

Dried fruit	0.50
Cereals	0.49
Oil	0.41
Pulses	0.30
Potatoes and leaved vegetables	0.28
Fresh fruit	0.21
Citrus fruit	0.17
Wine	0.10

This means that when the production level varies 10% from the prewar level, the commercialized production differs on an average by 5% from the total production for dried fruit and cereals, 4% for oil, 3% for pulses, potatoes and leaved vegetables, 2% for fresh fruit and citrus and 1% for wine.

According to category :

Vegetal food products	0.61
Total food products	0.45
Total vegetal products	0.40
Total crop products	0.30
Animal products not used for food	0.19
Total animal products	0.19
Animal food products	0.08
Total non-alimentary products	0.07
Vegetal non-alimentary products	0.06

The position here is somewhat the same. It can be seen for the total crop products that, for a difference of 10% compared with the prewar level of total production, the commercialized production varies by 3% from the total production.

For instance, when the production level is 85% of that before the war, the commercialized production is 60% of the total production. When the production level attains 95% (increase representing 10% of the prewar level), the commercialized production rises to 63% of the total production (increase representing 3% of the total production).

(*d*) The commercialized production expressed in per cent of the total production at the different levels is also an important datum. For greater simplicity, the production levels may be taken as 80 and 100 :

Commercialized production expressed in per cent of total production.

Production level 80% of the prewar average	
Citrus	78.8
Fresh fruit	73.3
Oil	72.6
Dried fruit	67.6
Wine	61.3
Potatoes and leaved vegetables	52.8
Pulses	45.9
Cereals	39.7
Vegetal products not used for food	92.3
Total non-alimentary products	91.5
Animal products not used for food	87.8
Total animal products	69.5
Animal food products	68.9
Sum total of products	58.4
Total food products	57.4
Total vegetal products	55.0
Vegetal food products	53.6
Average prewar production level	
Dried fruit	83.3
Citrus	82.3
Oil	80.8
Fresh fruit	71.8
Wine	63.3
Potatoes and leaved vegetables	58.3
Pulses	51.8
Cereals	49.5
Vegetal products not used for food	93.5
Total non-alimentary products	93.0
Animal products not used for food	91.6
Total animal products	71.4
Animal food products	70.4
Sum total of products	64.3
Total food products	63.1
Total vegetal products	63.1
Vegetal food products	60.1

(*e*) It may be noted that the wider the category is the better is the degree of adjustment of the interpolated right lines.

For the sum total of the products, the difference between the interpolate values and the original values are as follows :

Commercialized production in per cent of total production

	Recorded figure	Interpolated figure	Difference
1940	64.8	64.8	0
1941	65.9	64.4	— 1.5
1942	64.7	62.9	— 1.8
1943	57.5	60.0	+ 2.5
1944	57.5	58.6	+ 1.1
1945	56.3	53.6	+ 2.7
1946	55.9	58.3	+ 2.4

It will be seen that the maximum absolute error is 2.7 : it refers to 1945, year when the records were not so exact as in the other years considered, owing to the war. This would indicate that if the conditions of the seven years in question continue (considering their influence on the problem in hand), the ratio between the values of commercialized production and total production, for Italian agriculture, with a maximum error of some 3% of the total production, can be estimated. If, for example, the 1947-48 production level is 85% of the prewar level, the per cent ratio between commercialized production and total production will be between 60.0 + 2.7 and 60.0 — 2.7, that is to say, that the value of the commercialized production may be calculated at 57-63% of the total production.

Prices of Milk and Field Crops in the Netherlands

(*Sent by the Netherlands FAO National Committee*).

Recently the Government sent the States General a commentary on the prices fixed for milk and field crops, after consultation with the organized farmers and market-gardeners.

The main points of this commentary are given below :

The prices of the field crops should correspond to the general wage-level and price-policy, which is directed at stabilizing wages and prices. Therefore, a rise in the prices of foodstuffs must be prevented, and this makes subsidies for food inevitable. These subsidies, however, amount to such a high sum, that they cannot possibly be raised.

It is consequently clear that a revision of the price-policy can only be considered if it entails a fairer distribution of the national income and if the difference between wages and prices is not intensified.

In fixing prices, special attention was paid to a comparison of the incomes of crop farms in pre-war years and in the year 1946-47. The total income of farmers and labourers in the years before the war was compared with that of post-war years, as these years gave the most reliable figures.

It appears that, compared with 1937/39, the average index for the income of livestock farms is 261, of mixed farms 258 and of crop farms 325. If the cost of insurance, which can be considered as part of the wages, is added, an average figure of 290 is reached.

Generally speaking, it can be observed from these figures that the relative improvement in farmers' incomes seems to have developed to about the same extent as it has in the wages of field labourers. As the cost of living amounts to almost twice that of pre-war years, the Governement considers the present situation satisfactory, and that no drastic changes are necessary.

It may be expected, however, that as a consequence of the severe winter and subsequent dry summer, the results of the year 1947/48 will be inferior to those of 1946/47. The unfavourable effects of these conditions will be particularly felt on farms with light soils. The Government therefore considers itself justified in granting subsidies to these farms and is willing to allocate 40,000,000 florins for this purpose. This represents a grant of approximately 40 florins per hectare for farms of an area not exceeding 8 ha., *i. e.*, a maximum of 500 florins per farm.

Moreover, another extra grant must be considered for all farms of under 8 ha. which are not situated on the best soils, but on marine clay. A maximum of 1,000,000 florins has been made available for market-gardeners who have suffered losses owing to bad weather conditions.

The basic prices for bread-grains have been slightly raised, in accordance with a policy aiming at stimulating the production of bread-grains. The lowered prices of beets and potatoes, too, have set a better ratio between the prices of bread-grains and fallow crops.

In fixing prices, no account is taken of the higher production costs on light soils and the fact that the farms situated on these soils must now, contrary to before the war, deliver part of their grain yield for human consumption. Before the war, all this grain was used as stockfeed, and in this way a better final product could be obtained. Taking this fact into account the Government considers it necessary to grant these farms a compensation allowance totalling 11,000,000 florins for 1948.

The price of milk has now been definitely fixed, at 18.3 cents per litre. This figure includes the increase of 3 cents already mentioned in a former report. In this case, too, a compensation must be granted to the farms with light soils. 18,000,000 florins has been allocated for this purpose, amounting to a bounty of 1% per litre, while the farms in the Western milk district are already receiving a subsidy. It is planned to increase this bounty by 0.5 cents per litre.

Establishment of a Netherlands-North Europe Institute

The Norwegian Foreign Trade Review (*Norges Utensikshandel*) of 1 June 1948 announces that a Netherlands-North Europe Institute is being set up in Rotterdam with a view to intensifying trade exchange between the Netherlands and the countries of North Europe, namely, Sweden, Finland, Norway, Denmark and Iceland. The function of the Institute will be to study the market possibilities for Dutch products of the home country and the Netherlands Indies and, on the other hand, to determine what goods are the most suitable for importation into the Netherlands. In its review, the Institute will publish market reports, the texts of trade agreements and also scientific and cultural information. The first issue of this review came out under the title " Monthly Review devoted to fostering the trade and culture relations between Northern Europe — Denmark, Finland, Iceland, Norway and Sweden — and the Netherlands ". The Institute will not only promote business relations between the importers and exporters of the Netherlands and North Europe, but will establish contacts with official and semi-official institutions in order to assist them to draw up, *inter alia*, lists of goods when fresh trade agreements are being negotiated. Lastly, the Institute will organize courses and meetings.

Trade Agreements

A trade and compensation agreement was signed by **Argentina** and **Hungary** at Buenos Aires in July. According to the terms of this agreement, the Argentine Republic will supply Hungary with cotton, wool, oxhides and goat skins, quebracho extract, linseed oil, hog bristles, etc. Hungary will export railroad equipment, locomotives, coaches, machinery, industrial equipment, tractors, building material, electrotechnical fittings and chemicals. Argentina will deliver 6000 tons of cotton to Hungary in 1948 and 5000 tons a year during the period 1949 to 1952.

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Australia and the **Soviet Union** have recently signed a trade agreement ; the former signatory is to deliver wool, cotton and grains, and the latter will export paper, furs and tin.

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An agreement on commodity exchange has recently been signed between **Austria** and the **Anglo-U.S. Occupation Zone of Germany.** Austria will receive in return for her graphite, talcum, lumber, books, magnesite, knitted goods, cellulose, the following German products : chemicals, dyes, vehicles, machinery spare parts.

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A trade agreement was arranged on 11 June 1948 between **Austria** and the **Belgo-Luxembourg Economic Union** for a period of twelve months. Austria will chiefly export textile goods, special steels and special steel products, various machines and electric apparatuses, sawn lumber, plywood and other timber products, cellulose, paper and paper articles, felts for paper-making, hats, tractors, sickles and scythes. The Belgo-Luxembourg Union will supply Austria mainly with iron and steel products, chemicals, leather and skins for the footwear industry, morocco articles, furniture and coach bodies, copper and zinc, crude rubber, tyres, glues and gelatines, glass, rabbit hair, scutched flax and flax waste, worsted, rags and wool waste, Congo timber, forage seed, nursery stock and chicory.

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On 23 July **Austria** and **Czechoslovakia** signed a trade agreement in Vienna for a period of one year during which Czechoslovakia will supply sugar, hops, coal, infusible clay, glassware, bicycle tyres and attachments, ironmongery, trucks, various machines, chemicals, textiles and footwear. Austria will export sepiolite, ores, soda, worsted, steel, rolled iron goods, aluminium, iron and metal goods, ball-bearings, optical, precision and electrotechnical instruments, chemicals.

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The volume of the commodity exchange between **Austria** and **Hungary** has been heightened by an additional protocol to the existing Trade Agreement. It foreeses an increase of 50 % in Austria's exports of iron and metal products and revises exports of bearings, motor-cycles and paper. Hungary steps up her quotas of sugar and maize.

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On 9 July a trade agreement was signed in Vienna between **Austria** and **Poland** effective one year. Poland will export to Austria 1,300,000 tons of coal, fish, eggs and industrial products to the value of some 4.5 million pounds sterling. Austrian deliveries will mainly consist of metals, mine equipment and industrial products to a total value of approximately 2.25 million pounds sterling.

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A supplementary agreement of 25 August 1948 to the Trade Treaty between **Belgium** and **Denmark** has increased the volume of the commodity exchange between the two countries. In return for 13 million Danish crowns' worth of rolled iron, Belgium will receive eggs, malt, grain seeds, cheese and cream.

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The Belgian Government has cancelled the **Belgo-Italian** Trade Treaty. In its stead a provisional agreement has been concluded which decreases the commodity exchange between both countries by 25 % of the previous scheme.

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Another trade and payment agreement was concluded in June 1948 between the **Belgian-Luxembourg Economic Union** (including the Belgian Congo) and the authorities of the **Anglo-American Bizone in Germany** effective up to June 1949. The Bizone will deliver goods to the value of 75 million dollars : pit-coal (56 million dollars), scrap iron, hops, chemicals, farm machines and machines for the textile industry, parts for electric motors, optical and precision instruments, printed fabrics. The Belgian Luxembourg Union will mainly export rolling stock, railway coaches, phosphates, food specialities, rags for the paper industry, flax, rayon, copper, antimony and other raw materials.

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The **Belgo-Luxembourg Union** and **Denmark** have agreed to exchange goods worth 13 millions Danish crowns. Belgium in exchange for milling machinery will receive malt, eggs, cream and seed corn from Denmark.

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A new Trade Agreement between **Belgium** and **Rumania** was signed at the beginning of September 1948. Commodities to the value of 1,000 million Belgian francs will be exchanged ; Rumania is to deliver grains, petrol, and timber against Belgian industry products.

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A trade agreement has been drawn up in Frankfort between the JEIA (Joint Export Import Association) of the **Bizone of West Germany** and an **Indian** delegation to be effective from 1 July 1948 to 30 June 1949. The Bizone will acordingly export to India goods to the value of 20.06 million dollars and import merchandise for 12.06 million dollars. The Anglo-American Zone will mainly export chemicals, precision instruments, machinery and metal goods. India will supply jute, oilseeds, sebacic acid, spices, skins, manganese ore.

***

An Agreement on trade and payments between **Brazil** and the **United Kingdom** was signed in Rio de Janeiro on 21 May 1948. In 1948, the United

Kingdom is to supply coal, tin plate and tin, cement, petroleum and petroleum products, and other goods to the value of about 37 million pounds sterling. In addition, Brazil will obtain from the United Kingdom certain other products including cotton thread (500,000 pounds' worth), wool yarns and tissues (1,250,000 pounds) agricultural machinery and equipment (750,000 pounds).

Brazil is to supply to the United Kingdom meat to the value of 1,000,000 pounds, rice (75,000 tons), sugar to the value of 1,000,000 pounds, coffee (1,400,000 pounds), oranges (750,000 pounds), cocoa and Brazil nuts, cotton, cotton linters, hides, hard and soft wood, etc.

All payments are to be made in sterling.

***

Bulgaria and **Albania** concluded a trade agreement in August. Albania will deliver mineral oils, chromium and cotton, Bulgaria seeds, textiles, chemical products and building materials.

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A new Trade Agreement between **Bulgaria** and **Poland** providing for an exchange of commodities to the value of 17 million dollars from 1 September, 1948 to 31 December, 1949, will make Bulgarian agricultural products available for Poland and Polish textiles, chemicals, pharmaceutical products and machinery available for Bulgaria.

***

A new trade agreement was signed, on 7 May between **Bulgaria** and **Rumania.** The trade between these countries will amount to a value of 6 million dollars up to 1 May 1949. Bulgaria imports chemicals, petroleum, accumulators, machines for tradesmen, tools, spare parts for the textile industry, steel products, drugs, etc. Bulgaria exports mainly agricultural products and tobacco.

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Bulgaria and the **Soviet Zone in Germany** have made an agreement for the duration of one year for the exchange of raw materials, industrial and agricultural products to the value of 6 million dollars.

***

A provisional arrangement was concluded in Buenos Aires on 17 June 1948 between **Czechoslovakia** and **Argentina** with a view to settling the balance of the payments between the two countries. In effect, Czechoslovakia, owing to lack of foreign currency, was unable to pay in dollars for the purchases made in Argentina according to the terms of the trade agreement drawn up last year with this country for a period of five years. Thus, Czechoslovakia has undertaken to cover the arrears due to Argentina up to 17 July 1948 by the delivery of the following goods: coal, iron, machinery, locomotives, trucks, equipment for sugar refineries, window-panes, textiles. The Argentine Republic will supply Czechoslovakia with raw hides and oils to the value of one million dollars in exchange for machines.

***

An Additional Protocol recently agreed upon between **Czechoslovakia** and **Denmark** foresees a commodity exchange to the value of 20 million Czechoslovak crowns. Czechoslovakia will export machinery and agricultural equipment, woollen products, clothing, glassware, and Denmark casein, meat and office equipment.

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A new Trade Agreement between **Czechoslovakia** and **Norway** of 30 July, 1948 which is to hold until 28 February, 1949, foresees the exchange of Czechoslovak textiles, glassware, machinery, ceramics, sugar, hops and malt against Norway's cod-liver oil, chemicals, zinc, casein, and frozen fish.

***

The value of the commodity exchange between **Czechoslovakia** and **Poland,** according to the Trade Agreement valid from 1 July 1948 to 30 July 1949, will amount to 4.5-5 thousand million Czechoslovak crowns. Czechoslovakia will export mainly heavy industry products, raw materials for ceramic industry, coke, chemicals, rolled iron, and will receive in return Polish coal, zinc, textile and paper industry machinery, fats and other foods.

***

Czechoslovakia and the **Soviet Zone** in **Germany** have concluded a trade agreement which whilst being valid until 30 June 1949 is the beginning of wide collaboration of the two countries. Goods to the value of 18.5 million dollars will be exchanged. Czechoslovakia is to receive rock salt, potash, chemical products, machine parts for German machines, needles and textile machinery, and brown tar, whilst she will deliver special coal, rubber tyres, leather straps for machinery endless belts, rubber and cork goods and potatoes.

***

A new trade agreement was signed between **Czechoslovakia** and **Switzerland** on 25 September, 1948. It will be valid for one year as from 1 October, 1948, and will remain in force also after the end of the one-year period unless terminated by either signatory. The over-all trade volume is higher than in the previous trade agreement. Czechoslovakia is to export mainly sugar, malt, hops, glassware, iron and steel products, motor cars, paper, textiles, footwear, and chemical products. In return Switzerland will supply machinery and tools, dyes, chemicals for the textile industry, textiles, watches and certain agricultural products.

***

An agreement on commercial cooperation between **Denmark** and the **Anglo-American Zone of Germany** was signed in July 1948. The agreement is to be in force from 1 August 1948 to 31 July 1949.

Danish exports, to the value of about 65 million crowns, will include fish, cheese, potatoes, seed, vegetables, fruit, fish-oil, and casein. Imports from the Bizone, to the value of about 39 million crowns, will include hops, chemical products, industrial and agricultural machines and spare parts, textiles and electrical equipment.

***

A supplementary agreement of 15 July 1948 to the Trade Pact between **Denmark** and **Finland** provides for an exchange of Finnish paper and timber against Danish butter and eggs. Payment conditions are also laid down in this agreement.

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A trade agreement was drawn up in Copenhagen on 22 July 1948 between **Denmark** and the **French Occupation Zone in Germany** for the period 1 July to 31 December 1948. Exports from the French Zone will include agricultural and other machinery, surgical instruments, needles for textile machines, spare parts for motor-cars, aniline dyes, chemicals, auxiliary material for the textile and tanning industry. Denmark will supply table potatoes, seed potatoes, fish, casein, serum-albumin, insulin. The value of the goods exchanged by each contracting party will amount to some 10 million crowns.

***

A trade agreement was signed by **Denmark** and **Iceland** in Copenhagen on 4 June 1948 for the period 1 May 1949 to 30 April 1949. The agreement provides for the exchange of goods to the value of some 22 million crowns by each country. Denmark will send, inter alia, to Iceland: 400 tons of butter, 2,000 tons sugar, 1,400 tons oats, 4,000 tons rye and rye meal, 250 tons malt, 25,000 tons cement, steel and iron products, machinery and apparatus to the value of 4.5 million crowns. In exchange, Iceland will supply Denmark with herring oil for margarine manufacture, herring meal, salt herring, salt fish, unbleached wool and yarn, sheepskins and guts.

***

A trade agreement, covering the period 1 June 1948 to 31 May 1949, was signed by **Denmark** and the **Netherlands** in the Hague on 29 May 1948. Goods totalling some 72 million florins (approximately 130 million Danish crowns) will be exchanged. The Netherlands will export, among other goods, 4,000 tons copra, 10,000 tons crude iron, 200 tons tin, textiles (cotton, wool, ready-made clothes and artificial silk), lubricating oil, chemical and pharmaceutical products, salt herrings, oysters, spirituous liquors and liqueurs, and horticultural products (vegetable seed and flower bulbs). Denmark will supply the Netherlands with 10,500 head of livestock for consumption, condensed milk and tinned meat for the Netherlands East Indies, casein, different seeds, dyes, cement, cryolite and various machines, instruments and spare parts.

***

A new trade agreement was drawn up in Moscow on 8 July 1948 between **Denmark** and the **Soviet Union** effective up to 31 December 1949. Soviet supplies to Denmark will include bread-grains and forage cereals, fertilizers, fuels, crude iron and steel, timber and chemicals. Denmark will send the U.S.S.R. butter (16,000 tons), bacon, beef cattle, industrial products and a certain number of ships for which the Soviet Union will furnish material and steel to the Danish ship-building yards. The value of the goods exchanged by each State will amount to approximately 150 million Danish crowns.

***

In mid-September 1948 a new Trade Agreement was signed between **Denmark** and the **United Kingdom.** The commodity exchange foreseen in this instrument will attain the figure of 45 million pounds, *i.e.* about 50 % more than as fixed in the preceding agreement.

Denmark will supply butter and bacon, and the United Kingdom, on her side, fuel and steel.

***

A private commercial agreement has recently been concluded between a **group of Danish businessmen** and the **German Commerce Society** — a subdivision of the Economic Commission of the Eastern Zone of Germany. The agreement provides for considerable shipments of animal fats, fish, potatœs and vegetable seeds, etc. to the Soviet Occupation Zone of Germany, whereas Denmark will receive in exchange textiles, machinery, glassware, paper and chemicals. The value of the commodity exchange has been fixed at 15 million Danish crowns. Three such private agreements have previously been concluded between the same signatories, since the end of the war.

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A commercial Agreement between **Eire** and the **United Kingdom,** covering the period from 1 July 1948 to 30 June 1952, directs the major part of Eire's cattle, meat, bacon, butter exports to England.

***

A commercial and payment agreement between **Finland** and **Argentina** was signed on 8 July 1948. Argentina accords Finland a 18.3 million dollar credit for purchase of dried and tinned fruit, salt and frozen meat. In addition to the exchange of commodities the new agreement includes rules for payments, navigation and insurance conditions of transports between the two countries.

***

On 5 June **Finland** and **Iceland** reached a trade agreement signed in Reykiavik valid until 30 June 1949 involving 3 million dollars worth of goods.

Exports from Iceland to Finland will include salt herrings, dried herring meal and fish meal, cured sheepskins, while Finland will supply lumber, paper and paper goods.

In addition to the agreement, it is expected that purchases of herring oil and eventually herring meal, will be made.

***

A **French-Czechoslovak** trade agreement has been signed in Paris, 16 July 1948, providing for an exchange of goods to the total value of 6 billion crowns (c. 100 million U.S. dollars) and also for the settlement of compensation for nationalized French property in Czechoslovakia. Main articles to be imported from France are: wool, ore, and metals, special aluminium, cocoa nibs, colonial goods, machines and chemical products. Czechoslovakia will supply products of the engineering and metal industry, glass, textiles, malt and hops, sugar, sweets, coke and articles produced by the woodworking and paper industries.

***

Trade and payment agreements were concluded on 9 June between **France** and **Egypt** and the goods to be exchanged by the two countries were fixed. The agreement does not provide any quota lists and goods can be imported into either country without an import licence. Payments are made in the national currency of each country. The Egyptian agricultural products are seasonal, and conse-

quently, authorization to import these products will be given in good time by the French Government so as not to obstruct the finding of markets. The agreement, which became operative at the time of signing, is valid for a period of one year and can be renewed by tacit agreement. The clauses of the agreement are applicable to the territory of the 'free zone'.

***

A fresh trade agreement was concluded in Paris on 21 June between **France** and **Greece.** This agreement provides for the exchange of goods to the value of 4 milliard French francs by each country. The products which Greece will supply to France include tobacco, wines, oils, pyrites, magnesia, oranges, goat and sheepskins, colophony, carob beans. France will export to Greece motor car equipment, chemical and pharmaceutical products, wool and cotton yarn, fabrics, pneumatic tyres, machine-tools, hand-tools, earthenware and porcelain, etc.

***

A trade agreement has been signed in Paris, 5 June 1948, by **France** and **Ireland** with the object of increasing the exchange of merchandise between the two countries. France will chiefly export cement, potash, Thomas slag, phosphates, woollen yarn, silk and rayon fabric, motor-cars with spare parts, electric material, fruits, while Ireland will mainly increase her exports of cattle (5,000 head), horses, shell-fish, tweed and other textiles.

***

A trade agreement was signed by **France** and the **Netherlands** in Paris on 11 June 1948. This agreement, which became operative on 1 August 1948, replaces that of 7 May 1947 which had been extended up to 1 August 1948. The new agreement provides for an appreciable increase in the goods to be exchanged by the two countries, as the total volume will exceed 50 milliard French francs (approximately 350 million florins). France will import from the Netherlands and the Netherlands overseas territories condensed milk, cheese, eggs, vegetables, seeds, tin, coke, rubber, copra, bituminous products, shipping material. The Netherlands will import from France mainly electric fittings, potash, phosphates, sodium products, iron ore, iron and steel products, motor cars, woollen yarn, lumber, wines, cacao and perfumes.

***

Another trade agreement was concluded between **France** and **Norway** on 10 June in Paris, for the duration of one year. The agreement arranges to be exchanged to the value of 14 milliard French francs by each country. Norwegian exports to France will mainly consist of fresh or frozen fish, tinned fish, hydrogenized whale oil, medicinal cod liver oil and industrial marine oil, fish oil for veterinary use and for the canning industry, fish scales, preparations made from algae and kelp, beer, nitrogenous fertilizers, zinc, wood pulp and news print, casein, pyrites, while French exports will include fertilizers, wines and spirituous liquors, minerals (salt, bauxite, gypsym), chemicals and pharmaceutical products, colonial products, textiles, leathers and hides, hard wood and veneers, glassware, iron and steel products, machinery, electrical and mechanical fittings.

***

The joint **French-Danish** committee, provided for by clause 5 of the trade agreement concluded on 17 October 1947 between France and Denmark, met in Paris in May with a view to increasing the quotas of certain items and drawing up supplementary lists of the products to be exchanged between the two countries. The Danish products and merchandise to be exported to France include horses for slaughter (2,000 head), draught horses (1,000 head), seed potatoes (10,000 tons), alimentary and industrial casein (1,100 tons), condensed milk (5 million crowns), butter (1,000 tons), cheese (250 tons), eggs (500 tons), malt (500 tons), fresh salt-water fish and canned fish (1.6 million crowns), fish and bone glue, poultry, beer, cryolite (650,000 crowns and machinery (10 million crowns). Supplementary quotas of French quotas to Denmark comprise raw phosphates (60,000 tons), laminated products (4,000 tons), chemicals (6 million crowns), motor tyres (2 million crowns), colonial wood and hardwood (1.4 million crowns), linen thread, woollen, cotton, silk and artificial silk fabrics (5.6 million crowns), different machines (9 million crowns), wines and spirituous liquirs (1.5 million crowns).

***

In May an agreement for the exchange of goods was concluded in Frankfort-on-the-Main between the authorities of the **French Occupation Zone in Germany** and the authorities of the **Anglo-American Bizone** for the period ending 31 December 1948. The agreement provides for deliveries from the French Zone to the value of 240 million RM and from the Bizone to the value of 190 million RM. The French Zone will mainly supply agricultural produce, foodstuffs, wine, lumber, paper and tobacco, and the Bizone will deliver seeds and oilseeds (26,250 tons), seed potatoes (55,000 tons), chemicals, finished iron and steel goods and electro-technical instruments.

***

A trade agreement to be effective for six months was drawn up at Baden Baden on 11 July between the authorites of the **French Occupation Zone in Germany** and **Norway.** The French Zone will export surgical instruments, farm machines and chemicals, while Norway will mainly furnish fish and margarine.

***

A trade and financial agreement was signed in Athens in mid July between **Greece** and **Sweden.** The agreement is effective for one year and Swedish supplies will amount to 30 million crowns while deliveries from Greece will only attain 15 million crowns. Sweden will mainly send timber products, matches, paper, cellulose, fish, ball-bearings, iron and steel products, machines. Greece will export tobacco, colophony, hides and leathers, guts, olive oil, lead, sepiolite, pyrites, bauxite, chromium and kaolin. To cover the excess Swedish exports Greece will pay, in dollars, for consignments of cellulose and news print.

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An agreement signed in June 1948 by **Greece** and **Switzerland** prolongs the validity of their mutual

Trade Agreement of 1 April 1946 until March 31, 1949 with slight modifications in the volume of the commodity exchange.

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Hungary and the **Anglo-American Bizone** have concluded a trade agreement. 28 million dollars worth of goods are to be exchanged. Hungary will send agricultural machinery as against German machines and chemical products. An eventual Hungarian balance is to be paid in dollars.

***

Another trade agreement was signed on 19 March between **Hungary** and **Austria,** supplementing the previous agreement which covered the period from 31 December 1947 to 31 December 1948 for the exchange of goods to the value of about 3.5 million dollars. The new agreement comprises two lists of goods. The Austrian exports include pedigree livestock, lumber of all kinds, various chemicals and the material required by the Hungarian iron and steel works, cellulose, glassware, machinery and basic pharmaceutical products. Hungarian exports will consist mainly of foodstuffs, medicinal plants, liquid paraffin, paraffin, vaseline, starch, machine-tools and wireless equipment.

***

Under a commercial agreement between **Hungary** and **Bulgaria,** Hungary is to import mineral products, raw hides, tobacco and other Bulgarian products in exchange for electrical and wireless apparatuses and agricultural machinery. The value of the goods to be exchanged is fixed at 17 million dollars.

***

Hungary and **Czechoslovakia** arriving at a new trade agreement in Budapest will exchange electrical and industrial equipment, as well as mineral oils, aluminium, foodstuffs and other agricultural products from Hungary for coke, iron ore, ball-bearings, cables and machines.

***

On 19 June a trade agreement was concluded in Budapest between **Hungary** and **Rumania** for the exchange of goods to the value of over 20 million dollars. Rumania will include in her exports to Hungary ores, timber and timber products, chemicals, metals (lead, zinc) and other raw materials (bitumen, petroleum, fuel oil) and 30,000 tons of salt, while Hungarian deliveries will consist chiefly of industrial products, farm machinery (10,000 ploughs, 400 threshers, 100,000 farm tools and implements), engines, pumps, locomotives, motor buses, bicycles, sewing-machines, medicaments, precision instruments.

***

A commercial agreement between **Italy** and the **British-American Occupation Zone of Germany** has recently been signed. The Italian exports, to the value of 56 million dollars, will comprise fruit, vegetables, foodstuffs, flax, rayon, silk, nitrogen fertilizers, rolling stock, sulphur, quicksilver, lime chemicals, electrotechnical machinery, whereas the Bizone will deliver coal, industrial products, timber, chemicals and dyes.

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A trade agreement between **Italy** and **China** has just been settled in Nanking. Italy will export artificial silk to the value of 2 million dollars against soybeans, vegetable oils and other agricultural products.

***

In succession to the agreement which expired at the end of May 1948, a new trade agreement was concluded in Copenhagen, on 18 June, between **Italy** and **D nma k** for the period ending 31 May 1949. This agreement provides for the exchange of goods for a total value of 120 million Danish crowns per year by each country, while the maximum value with the old agreement amounted to 50 million crowns. Goods will continue to be exchanged on a reciprocal basis. Italy will mainly export textiles (cotton, woollen and rayon fabric, hemp cloth, cotton and woollen yarn, clothing material, etc.) to the value of 35 million crowns, oranges and tangerines (3 million crowns), lemons and dried fruits (3 million crowns), fruit pulp and juice, tomato preserves, walnuts and hazel-nuts, wines and liqueurs (4 million crowns), horticultural produce, tanning extracts, celluloid, chemicals, power-driven vehicles, different machines, apparatuses and tools. A quota of 5 million for raw tobacco is anticipated.

Denmark will chiefly supply foodstuffs (approximately 95 % of the exports), namely, salt and dried fish (24,000 tons) and fresh fish (8 million crowns). Fish represents about half the Danish exports to Italy. Denmark will also export cattle (5,000 head for slaughter and 2,000 for breeding), horses (to the value of 5 million crowns), poultry (3 million crowns), eggs and egg preparations (3 million crowns), casein (2.5 million crowns), lard (2 million), salted guts (2.5 million), seed potatoes (20,000 tons), cryolite (2.5 million crowns), machinery, etc.

The agreement, for the first time, also provides for a specific quota of butter (750 tons) and the possibility of importing from Denmark forage and sugar up to the amount of 2.5 million crowns.

***

Italian-Swedish trade agreement. The Joint Italian-Swedish Committee, set up according to the trade agreement of 20 January 1948, took the following decisions at its first meeting (Stockholm, 7-15 June 1948) :

The two countries will be able to exchange freely their merchandise as the three categories formerly fixed have been abolished. New yearly quotas have been arranged :

Italy will include in her exports to Sweden : roofing felt (400 tons), pectin (100,000 Swedish crowns), common salt (10,000 t.), lemon and other essential oils (100,000 crowns), electric wiring and cables (1 million crowns), electrical equipment (1 million crowns), rubber articles (650,000 crowns).

Sweden will supply Italy with : chemical wood pulp (13,000 t.), dried mechanical pulp (4,000 t.), waste paper (5,000 t.), turpentine (100,000 crowns), cellulose derivates (250,000 crowns), steel bands (1 million crowns), special steel for ball-bearings (500,000 crowns), steel wire, machine parts, etc.

***

The **Netherlands** has just reached an agreement with the **Anglo-American Bizone** whereby the Dutch export quota has been fixed at 181 Dutch guilders whilst deliveries from the Bizone will amount to 215 million Dutch guilders. The Netherlands will primarily deliver foodstuffs, chemicals, tin, rubber and industrial diamonds whereas the Bizone will send machines, sawn lumber, chemicals, textiles, electrical plants, iron and steel products as well as considerable quantities of coal. This agreement will be valid from 1 August 1948 until 31 July 1949.

***

The **Netherlands** and **Eire** have signed an agreement which will increase the volume of their commodity exchange. The Netherlands will export more fertilizers, yarns, dairy, agriculture and other machinery, chemicals, and leathergoods ; Eire is to increase in particular the deliveries of cattle.

***

On 3 August the agreement between the **Netherlands** and **Hungary** which was signed in Budapest on 13 December 1947 has been prolonged until 1 January 1949. Amongst other goods railway material, soybeans, tinned mushrooms, apricot pulp, sunflower seeds and caustic soda will be exported from Hungary whilst the Netherlands will deliver chemical and pharmaceutical products, quinine, tin, rubber, agricultural seeds and hatching eggs., tea from Java, certain spices, cocao butter, powdered milk.

***

In the second fortnight of June 1948, the **Netherlands** concluded a fresh trade agreement with the authorities of the **Soviet Occupation Zone in Germany** for a period of one year. According to this agreement, goods will be exchanged to the value of 30 million florins on both sides, compared with the 20 million florins fixed by the preceding agreement which expired on 1 June. The Soviet Zone will mainly supply potash, machinery, electrotechnical equipment, various tools, chemicals, earthenware and china.

The Netherlands will export to the Soviet Zone rubber, industrial diamonds, rubber tyres, binder-twine, superphosphates, chemicals, fresh fish and herrings.

***

On 10 June 1948 another trade agreement was concluded in Moscow between the **Netherlands** and the **U.S.S.R.** for an unspecified period. The list of goods to be exchanged will be fixed year by year. During the first 12 months, the Netherlands will export chiefly material for ship-building, electro-technical apparatus, industrial diamonds, rubber and rubber products, chemicals and pharmaceuticals, dyes, footwear, herrings, breeding cattle and some Dutch industrial products. The Soviet Union will mainly furnish cereals, sawn lumber, pitprops, wood for paper manufacture, potash, manganese, sodium sulphate, petroleum and other raw materials. The value of these supplies will total 90 million florins.

***

A trade agreement was drawn up on 15 July 1948 in Montevideo between the **Netherlands** and **Uruguay** effective for three years. It can be renewed by tacit agreement and fresh lists of the goods to be exchanged will be fixed each year. The Netherlands will chiefly export machinery, engines, electrotechnical apparatuses and fittings, dredging machines, household goods, textiles, cables and ropes, leather and rubber goods, paper, chemicals, pharmaceutical products, industrial diamonds, petroleum derivates, breeding cattle, potatoes, flower bulbs and seeds. Uruguay will supply linseed, sunflower seed and oil, oilcakes, wool, hides and leathers, agricultural produce and livestock.

***

An agreement on commodity exchange and payment has recently heen signed by **Norway** and the Military Government of the **British-U.S. Occupation Zone of Germany.** Norway will supply the Bizone mainly with fish, pulpwood, iron ore, and will receive in return coal, coke, iron, steel, machinery, chemicals, pharmaceutical products and textiles.

***

A trade agreement was signed in Oslo on 29 April last, by **Norway** and **Sweden** for the duration of the current year ; goods to the value of some 130 million Swedish crowns will be exchanged. Swedish exports will include machinery and apparatuses, steel and iron, chemicals, transport material (trucks and frames), iron and zinc ore, cellulose and wood in logs. Norway will chiefly export salt herring, whale oil and other fats, calcareous nitre, sulphur, pyrites, copper and zinc.

***

In mid-June 1948 a new economic agreement on the commodity exchange for the period 1 July 1948 to 30 June 1949 was signed by **Norway** and **Switzerland.** The agreement provides also for the modalities of payment. Goods quotas to be exchanged are essentially equivalent to those laid down for the preceding year.

***

Pakistan and **Czechoslovakia** have come to an agreement whereby Czechoslovakia has undertaken to provide the capital and technical staff for the establishment of thirteen large factories. These factories will be managed by Czechoslovakians for a period of ten years after which period they will be handed to the Pakistan Government.

***

A fresh trade agreement was drawn up at Budapest in June by **Poland** and **Hungary.** This agreement tends to establish close cooperation between the two countries in regard to commercial and industrial policy, on the basis of rational distribution of work. There will be a considerable exchange of raw material, finished industrial products and agricultural produce. The agreement will ensure Poland a market for her surplus coke. On the other hand, Hungary will be linked up with the high tension grid of Czechoslovakia and Poland.

***

On 15 June, a trade agreement was concluded in Warsaw between **Poland** and **Iceland** for the duration of 18 months. According to the terms of this agreement, Poland will mainly supply Iceland with coal, iron and steel products, electro-technical equipment and chemicals, while Iceland will export to Poland sheepskins, cod-liver oil, industrial oils, herrings, horses.

***

An agreement on economic cooperation and commerce between **Poland** and **Rumania** was signed on 20 September, 1948. Poland will export machinery, technical instruments and various raw materials, whereas Rumania is to deliver mainly petrol and mining products. This agreement is valid for five years.

***

A fresh trade agreement was drawn up in Lisbon on 3 July between **Portugal** and the **Netherlands.** According to the terms of the agreement, goods to the value of 30 million florins will be exchanged up to 1 March 1949. Netherlands exports to Portugal will include chemical and pharmaceutical products, mineral oils, dyes, lacquers and varnishes, electric machines and apparatuses, instruments, farm machines and tools, engines, textiles, paper goods, cigars, crude iron, potatoes, cattle, cheese, milk preparations, beer. Portugal will supply wines and leather, slate and colonial products such as wax, cassava, cacao, coffee, groundnuts ; Portugal will also deliver fish oil, pyrites and kaolin.

***

On 23 June 1948 another trade agreement was concluded in Berlin between **Sweden** and the **Soviet Occupation Zone in Germany** for the period 1 July 1948 to 30 June 1949. Sweden will mainly export fish, pyrites, tanning extracts, chemicals, cellulose, paper and steel, while the eastern zone of Germany will supply Sweden with kaolin, clay, infusible bricks, potash, glass-ware and porcelain, machines with spare parts and equipment for electric plants, and optical instruments. The goods exchanged will attain a value of 11 million Swedish crowns.

***

Sweden and **Spain** have recently signed an agreement on commodity exchange which has been applied since 1 July 1948. The agreement considerably increases the trade volume between the two countries ; the amount of Swedish exports to Spain is fixed at 55.5 million Swedish crowns, whereas the Spanish exports are scheduled to attain 60 million Swedish crowns. The balance will be settled through Swedish transportation services to Spain within the framework of this commodity exchange. Sweden is to export mainly timber, other forestry products, and paper ; Spain will export raw materials, wolfram ore, sulphur, hides.

***

A fresh trade agreement has been signed on 15 June by **Sweden** and **Turkey** for the duration of one year ; it can be renewed by tacit consent for a second year. While Sweden will mainly furnish paper and pasteboard, machines, instruments, iron, steel products and telephone fittings, Turkey will supply Sweden with tobacco, chromium, copper, cotton, oilcakes, linseed, guts, hides, dried fruits, etc.

***

An agreement was concluded in Stockholm on 22 May for the exchange of goods between **Sweden** and **Yugoslavia,** effective from 15 April 1948 to 15 April 1949. The trade and financial agreement drawn up for 1947, remains in operation for the duration of the new agreement.

Sweden will deliver to Yugoslavia goods to the value of 15 million crowns : pharmaceutical products, paper, pasteboard, iron, steel, electric fittings and machines.

Yugoslav exports amount to about 42 million crowns and include maize, oilcakes, copper, tin and caustic soda.

Like last year, the surplus export funds will be utilized either to pay for Swedish deliveries to Yugoslavia stipulated in 1947, or for the debts contracted by the Yugoslav Government through the nationalization of Swedish property.

A credit of 10 million crowns is provided for Yugoslavia for the purpose of carrying out reconstruction work.

The aforesaid amount, according to the agreements concluded by Sweden in Washington, may be drawn from the credit payable to this country by Germany by way of contribution to reconstruction operations in the countries bound by the Paris reparations agreement.

Last year a credit of 5 million crowns was placed at the disposal of Yugoslavia.

***

A commercial agreement of 24 August, 1948 between **Switzerland** and the **British-American Bizone of Germany** will make available for the Bizone 20 million dollars' worth of Switzerland's goods, mainly textiles, chemicals, electrotechnical machinery. The Bizone will deliver hops, mechanical tools, optical equipment.

***

A provisional **Switzerland-Egypt** trade agreement signed at the end of September 1948 establishes the volume of commerce and conditions of payment to hold between the two countries until the end of this year. Egypt's deliveries of cotton will be made good by Switzerland's deliveries of pharmaceutical products, and machinery and material needed for the construction of Asswan barrage and electricity plant.

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Switzerland and **India** have established a trade agreement and general agreement, the first to be

made by India after its acquisition of independence. Whilst details of trade exchange are to be settled later, it is announced that in 1946 Switzerland exported goods worth 45 millions francs to India whereas India delivered goods worth 20 million francs to Switzerland. From Switzerland mostly textiles, machines, paints and pharmaceutical products were exported whilst they imported groundnuts, linseed, leather and hides from India.

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At the end of September 1948 a new trade agreement between **Switzerland** and **Yugoslavia** was signed in Bern. This agreement constitutes a Trade Treaty and provides at the same time specification of the commodity exchange, payment conditions and settlement of the Swiss claims resulting from the Yugoslav nationalization neasures. The mutual goods exchange foreseen for a period of five years will import Swiss textiles, yarns, tissues, watches, pharmaceutical products, dyes, cattle and power plants equipment, machinery, apparatuses, etc.

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Turkey and **Poland** have reached a trade agreement whereby Turkey has listed the following goods: tobacco, dried fruits, mohair, raw hides, washed wool, oilseeds, cotton materials, tannin. Poland will deliver agricultural machinery and tools, electric motors and cables, rails, chemical products, paper, sugar and cement. Poland will ensure use of Turkish tobacco and dried fruits within the country.

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A trade agreement was signed by **Yugoslavia** and **Argentina** on 7 June 1948 for a period of four years. The agreement, drawn up on a reciprocal basis, provides for Argentina granting facilities to Yugoslavia for the purchase, during the first year of the agreement, of the following products : raw hides (6,000 tons), washed wool (4,000 tons), linseed oil (1,000 tons), tallow for industrial use (500 tons), casein (100 tons), industrial wax (100 tons) and horsehair (8 tons). Yugoslavia will accord the same facilities to Argentina, during the same period, for the purchase of cement (100,000 tons), caustic soda (4,000 tons), Solvay soda (1,000 tons), polishing and grindstones (50 tons), hops (100 tons), dried mushrooms (20 tons), walnuts (100 tons), cigarette paper, medicinal plants, calcium carbide (2,000 tons), calcium cyanamide, pine and fir sawn lumber (25,000 tons), plywood (250 tons), alkaloids for medicinal use (100 tons). The amount of goods to be exchanged in the successive years will be decided before the end of each preceding year.

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The trade agreement between **Yugoslavia** and **Austria** which has recently been submitted to the Allied Council for approval has been applied since 1 September 1948. The volume of the commodity exchange which is to a value of 42 million U.S. dollars, comprises on the Yugoslav side, mostly rail-sleepers, maize, hogs, hides, ore ; on the Austrian side, magnesite, cellulose, finished steel products, paper, agricultural equipment, etc.

FISHERIES

The Italian Fishing and Canning Industry

(*By* Cristiano Focarile, *Editor of* "Rivista della Pesca"

The fishery industry in Italy employs 1576 motor boats, totalling a gross tonnage of 36,000 tons. In 1947, this fleet together with sailing and rowing boats landed 1,200,000 quintals of fish, while before the war, with a smaller fleet, landings attained 1,800,000 qls.

The catch is smaller because, prior to the war, the motor fishing boats worked the eastern coasts of the Adriatic and carried operations into the Palestine, Egyptian, Libyan and Tunisian waters, while now they are restricted to the Italian seas which are not very rich in fish.

It should also be taken into account that Atlantic fishing which before the war amounted to 100,000 qls., has not yet regained its former level. The ten vessels which formed the Atlantic fleet have either been sunk or seriously damaged, and great difficulty was entailed in recuperating a few of these boats, which can now start operations once more.

According to the Marshall Plan, in 1950-51 Italy is to increase landings to 2,100,000 qls., namely, 300,000 qls. more than the average catch for the 5-year period 1934-38.

In 1947 landings totalled 1,215,000 qls., comprising 253,000 in the Tyrrhenian Sea, 88,000 in the Ligurian Sea, 35,000 in Sardinian waters, 320,000 off Sicily, 45,000 in the Ionian Sea and 472,000 in the Adriatic.

During the war, many vessels were commandeered by the Navy and utilized as mine-sweepers, cargo boats, troop-ships and also for landing forces. At the end of the war, these vessels were released and returned to fishing in territorial waters. At first good results were obtained as there was an abundance of fish owing to stoppage of all fishery operations during the war years. At present, however, the fishing fleet which formerly operated in the Mediterranean, the Red Sea and the Black Sea, can no longer range as far because of the uncertain political situation and has to keep to the Italian side of the Adriatic.

Consequently the ship-owners and crews desire the Italian Government to come to an agreement with Yugoslavia and the countries bordering the Mediterranean, the Red Sea and the Black Sea in order that sea-going vessels might operate in these waters so as to increase the fish production of Italy which still has to import each year over a million quintals, to the value of 12 to 15 milliard lire.

In Italy the fish canning and processing plants are scattered along the coast. The chief centres are located in Liguria, Tuscany, Sardinia, Sicily, in the maritime provinces of Venetia and Emilia, and in Apulia.

Prior to the war, this industry produced 200,000 qls. of canned fish, of which 20 to 30,000 qls. were exported to the different countries of the world. It is at present undergoing a severe crisis as the production costs in Italy are too high compared with those of canning plants abroad which have succeeded in exporting to Italy large quantities of tinned fish at cheaper prices. At the same time Italian production has dropped to less than a third of the prewar output.

Since the entire Italian fishery industry may be considered as suffering from a severe economic depression, the Government has been urgently requested to take adequate steps to promote Mediterranean coast and deep sea fishing and to assist the canning industry. It is hoped that organizing credit, granting State subsidies for ship-building, financing fishery operations, together with a rational fiscal and customs policy will bring about the development of this sector of national economy, of vital importance for a maritime nation like Italy.

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From 1 to 17 October Paris was the location of an International **Nautical Industries** Show which assembled the outstanding products of recent years in regard to sailing and motor boats, aquatic sports and fishery.

Utilization of ponds in France

Owing to the food crisis in France the problem of breeding fresh-water fish has called attention to the many pools in France and particularly in Sologne. Pisciculturists in Sologne who have never ceased operations, have made their services available to the owners of the district ponds and with the assistance of experts from the Woods and Forests Department it has been possible, on the basis of known facts, to draw up general rules for exploitation, rules concerning both the area and product exploited. This question is treated by Mr R. Gessat, Agricultural Division engineer, in 'L'Union forestière et piscicole'. He notes that the development of carps depends on the food at their disposal, and that the fish-breeder should concentrate on fostering the growth of plankton — warming the water in spring, neutralizing the acidity, maintaining proper fertilizer content, conservation of water supply. The ideal fish, because of its rapid growth, is the carp which is the main species used in stocking the ponds in Sologne. The addition of tench, roach and perch is recommended. In stocking, improved selected fry should be employed. The density of fish population depends on the type of pool and may vary from 50 to 300 and even 400 fish per hectare in very good ponds. Account should be taken of the age and size of the fry.

FORESTRY

The Sub-Committee of the **Timber Division** attached to the Board of Trade and Industry in **Italy** has drawn up a program regarding required wood imports. According to this program, the national requirements in lumber are estimated at 3,359,866 tons comprising 1,275,000 tons for the lumber industry properly so called, 450,000 tons for ship-building, 37,994 tons for engineering, 17,686 tons for motor vehicles, 35,718 tons for railway coaches, 60,000 for railway equipment, 200,000 tons for railway sleepers, 400,000 tons for the mines, 33,468 tons for cellulose, 180,000 tons for wood pulp, 370,000 tons for agricultural use.

On 1 January 1948 timber stocks amounted to 750,000 t. and domestic production in 1947 totalled 800,000 tons; the 1948 output is expected to be lower.

The dollar zone had a supply of 1,300,000 tons of deal (from Austria, Czechoslovakia, Yugoslavia, Russia, Rumania, Sweden and Norway) and 100,000 tons pitch-pine.

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A forestry instruction division was set up in **Madagascar** in 1943 for the purpose of training not only the officers of the Woods and Forests Ministry but also the young Madagascar nationals who wished to take up forestry. This division di-

rects the Angavokoly forestry school where courses are given on forestry law, mathematics, topography, forest geography, botany, sylviculture, pisciculture, bee-keeping, technology of wood and forest products, nursery upkeep. Practical instruction takes the form of a 7 months' tour of the island. The division also directs the technical forestry offices of regional economy.

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The **Timber Office of French Equatorial Africa** was set up by Decree of 24 February 1948 and reorganized by Decree dated 17 August last. This Decree lays down, *inter alia*, that the work of the Office will be to study the timber markets and the problems concerning forest utilization and selling. The Office will remain in operation for ten years, and enjoys a monopoly. In reality it is a group of producers having legal status and financial independence, placed under the control of the High Commissary of the French Republic ; its headquarters are located in Libreville (Gabun).

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The Aïn Draham **forest in Tunisia** covers 52,541 hectares. During the war it was perforce completely neglected, but the Forestry Division is now making a strenuous effort to restore it to proper condition. Operations included 396 hectares of safety ditches as a safeguard against summer fires ; 50 km. of roadways were improved in order to bear the load of heavy trucks. A bridle-path which can carry jeep traffic has been laid out ; it crosses the mountain ridges and is the first step in an important program. The housing conditions of the personnel have been improved and another forest outpost has been built. Official felling yielded a profit of several million francs. The cork harvest is expected to exceed 15,000 quintals;

VITICULTURE

International Wine Office

The XVIIth official plenary session of the International Wine Office was held at the Ministry for Foreign Affairs in Paris on 21 and 22 July. The member countries were represented by their delegations and the United States sent an observer. The Committee examined the items on the agenda, giving special attention to the general Report on the world viticulture situation, and decided to request FAO to include this question on the agenda of the coming Annual Conference which will take place in Washington next November. The IWO also desires that the question of the inventory of the name-brand catalogue be discussed.

At the July meeting, the Committee awarded the prizes founded by the IWO. The list comprised 15 authors for a corresponding number of studies. The gold medal of the IWO was unanimously conferred on the Monopoly and Customs Ministry of Turkey in recognition of the faultless organization and direction of the IIIrd International Wine and Table Grape Congress which was held in Istamboul in October 1947.

In the course of the meeting, reports were given on the economic adaptation of agricultural motorization to vine-growing. The Committee examined the measures taken in several countries with a view to improving the quality of wines by growing selected stocks better adapted to soil and climatic conditions, and to establishing an international ampelographic register. In this matter the Committee decided to set up a commission of experts which will meet before the coming Athens Congress so as to adopt a uniform working method.

The question of the eventual revision of the Berne Phylloxera Convention laid down on 3 November 1881 will be submitted for examination to all the States concerned in order that a fresh text may be worked out, if possible, at the Athens Congress. The next Congress in Athens was set for the second fortnight of August 1949.

Ist Congress on name-brands

The Ist Congress on name-brands was held in Deauville from 25 to 27 June 1948. This Congress, under the chairmanship of Baron Le Roy, President of the 'Institut national des Appellations d'Origine des Vins et Eaux-de-vie', assembled some hundred delegates from the different regions of France and North Africa, from the United States, United Kingdom, Switzerland, Belgium and Luxembourg. This event is the first collective effort to specify the concept of vintage origin, to delimit, defend and maintain name-brands of any kind. The delegates stressed the necessity of organizing the protection of name-brands on a professional level and to set up a financing plan and executive bodies. Considerable progress has been made in the valorization of brand milks and cheeses.

The resolution unanimously carried by the congress members gives a definition of the brand product and its substantial qualities, which ensue from both natural factors (climate, soil type, exposure, flora, crops cultivated, livestock breeds, etc.)

and factors due to the action of the producer (cultivation methods, methods of wine-making, processing and preservation). Since brand products are an incomparable heritage which must be safeguarded, developed and valorized, the Congress appeals to the producers concerned, to agricultural organizations and public authorities to combine their efforts to this end. In order to follow up the action thus started, the Assembly decided to establish a technical organization for coordination and operation whose function is to see that the unity of the doctrine laid down by the first Congress on name-brands is maintained.

(' *La Journée viticole* ', 2 July 1948).

More about ' roncet '

A decision of the International Committee for the study of ' roncet ' of the vine indicates this disease as ' infectious degeneration ', in this way eliminating the multiple causes which may lead to an accidental stuntedness.

Starting from this decision, Mr. A. Michel * of the Burgandy Oenological Station in Beaune, undertook an investigation on this new aspect of the problem. He points out that " the experiments now being carried out tend to prove that ' roncet ' is caused by a virose possibly spread by *Phylloxera radicicole*. It ensues that while some research workers consider ' roncet ' to be a vegetative manifestation of a simple nutrient deficiency in the plant, which could easily be prevented, for others, this deficiency shows contagious and hereditary features which may well be serious.

None of these hypotheses is entirely satisfactory as none of them is supported by indisputable results.

In 1921, Messrs Marquenne and Demoussy advanced a hypothesis in which they raised the question of " whether an accumulation in the soil of such a toxic substance as copper was not injurious to the soil, causing it in time to lose its fertility ". These investigators, however, concluded that the copper in the soil was sufficiently immobilized and that consequently the soil-water only dissolves out traces which do not injure plant growth. It is this latter point which Mr A. Michel desired to verify by ascertaining " whether this toxic element did not migrate more or less slowly to the lower soil layers, thus attaining the level of the root system and causing its destruction ".

It should be taken into account that the experiments effected by the latter research worker were carried out on the same field which had been given a uniform treatment. The results obtained led to the following conclusions : the facts are in keeping with the hypothesis of copper poisoning of the soil. There is no denying the relation between the extent and gravity of the disorder and the number of copper sulphate treatments (the disorder occurs more frequently in the southern areas where greater use is made of copper sulphate). Fresh ground is healthy. Deep ploughing often causes the appearance of ' roncet ' since, in effect, it brings the copper in the top layer into contact with the root system. The best kept vineyards which receive the largest number of copper sulphate dressings are frequently the most affected. It is not surprising, therefore, if certain fertilizers or ameliorators attenuate the symptoms of the disorder, as a treatment which augments the consistency of the soil checks the migration of the copper. Lastly, does a soil recognized as being contaminated remain so indefinitely, or do the three to ten years under other crops considered indispensable to ' sterilize ' the soil suffice ? It is evident that substitute crops, lucern, sainfoin, etc. may improve the top layer, but their efficacy can only be temporary since the toxic agent is again introduced with treatments applied to the new vine plantings.

If this hypothesis is true, an endeavour should be made to stop using copper in the control of downy mildew and replace it by an effective organic product of which the toxicity for the living cell would disappear with its decomposition in the soil.

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The Soviet wine-growing organizations have now turned their attention to the question of exporting their wines. The S.S.R. of Georgia, where, according to official reports, wine production exceeds the value of 1 milliard rubles per year, will make the first attempt in this field by displaying choice wines at the international fairs held in Hungary, Italy, Poland and Finland.

(' *Informations économiques* ', Zurich and Laus.), 2 June 1948.

Phylloxera damage in Italy

An investigation of the Italian Central Statistics Institute shows that during the period 1940 to 1947, phylloxera destroyed 94,000 hectares of vineyards and 304,500 ha. of vines in mixed cultivation. These figures correspond approximately to 10% and 11.5% respectively of the 1939 area. The regions which suffered the most damage, in the case of single crop vines, are Piedmont, Liguria, Emilia, Umbria, Le Marche, Abruzzi and Molise, Basilicata and Campania, and in mixed cultivation, Lombardy, Liguria, Emilia and particularly the regions in the South.

At present approximately 110,000 ha. of vines grown as a single crop, and 928,000 ha. in mixed cultivation, are attacked by grape phylloxera.

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* A. Michel, Étude sur un nouvel aspect du problème du Court noué de la vigne, *Annales agronomiques*, Paris, mars-avril, 1948.

The loss in vine stocks is estimated at some 257 million.

New plantings on American stocks begun in 1940 now cover about 150,000 ha. for single crop vines and 278,000 ha. in mixed cultivation.

PLANT DISEASES AND INSECT PESTS

Causes of fruit tree decay

The investigations carried out in the canton of Grauwalden, Switzerland, by Dr. K. Meier-Jecklin on the causes of fruit trees decaying have given very interesting results which the author has reviewed in an article published in the 'Annuaire agricole de la Suisse' (3rd Issue, Berne, 1948). It is a question of a disease which, although not parasitic, is rather dangerous, and is due to nutrient deficiencies in the soil. The disorder occurs in different regions of Switzerland and in Europe. In English-speaking countries it is called dieback. The disease appears wherever the soil shows the same deficiencies.

These are the symptoms: The tree shoots of the preceding year, often the strongest, produce new shoots which grow only at the tip or at the base. The bark is sometimes swollen. The majority of the buds develop weakly or not at all. The leaves of the rosettes which develop from these buds are very thin and lanceolate. The cambium sometimes changes colour and turns brown. In most cases the crop is very small, the fruits are stunted, dented, deformed to an unrecognizable extent. The skin of the fruit is covered with corky spots, sometimes corky 'bands' and suberose parts are found in the pulp. At the beginning, a few twigs die off, later the branches and finally the whole tree. Trees which have been grafted with the hope of saving them, also die off.

The investigations carried out by Dr Meier-Jecklin and his experiments on fruit trees (tall standards and potted plants) in relation to soil analyses and climatic conditions, gave the following results. Plant or animal pests do not cause the damage. Meteorological investigations showed that very low temperatures, excessive changes in temperature, extreme insulation or lack of water may accentuate and strengthen the symptoms of the disease but not originate them.

A very extensive number of chemical soil analyses indicated the true causes: more or less complete absence of phosphoric acid, deficiency of potash and boron, and naturally also nitrogen. Soil with an alkaline reaction is poor in humus, fairly rich in carbonates, but probably does not contain enough magnesium. It very effectively retains phosphoric acid, but not potash nor boron, it is presumed.

The author, with seven series of fruit trees in pots (20 pots containing 100 litres of soil each), was able to bring about this disease, cure the trees with appropriate mineral fertilizers, and obtain sound and normal trees, bearing sound and normal fruits. For instance, one series proved that when the fertilizer mixture was complete (N, P, K, Ca), the right dose of boron makes for healthy trees, growing well and giving good yields. It was possible to ascertain to some extent, the quantity of boron required (approximately 10 gamma per 10 gm. of soil). Another series showed that it is possible to cure trees already seriously affected by means of soluble mineral fertilizers, containing phosphoric acid, potash, boron and nitrogen. These trees produced a good yield of sound and well formed fruit. These results are very important for arboriculture. Other trees were cured by means of rational irrigation; the author found that too much water was injurious.

In conclusion, the author suggests the following protective and curative measures:

(1) Appropriate fertilizer applications of phosphoric acid, potash, boron and nitrogen.
(2) Soil tillage and improvement.
(3) Irrigation adapted to conditions.
(4) Increased humus in the soil.
(5) Control of soil nutrient content.

Oat smuts

Mr Lansade gives an account in the *Comptes rendus de l'Académie d'Agriculture de France*, April 1948, of the investigations and experiments carried out at the Central Plant Pathology Station in Versailles on the control of loose smut of oats, "the spores of which borne by the seed germinate and infect the seedling during the period following sowing of the cereal".

This disease similar to loose smut of wheat has spread to an alarming extent since 1945 and the question of treating the seed had to be given serious attention. Experiments were undertaken in 1947 with a view to comparing with products of known effect such as formol, various other products easier to employ, but of debatable efficacy. Exper-

iments were carried out on infected plants under natural conditions and on Moyencourt black oat seed from a crop in which 49.5 % of the panicles were attacked by smut. The following material was used : (1) Formol and derivates ; (2) organomercuric compounds ; (3) diverse products : neutral orthohydroxyquinoline sulphate, acetic acid and benzoic acid, copper salt, sulphur, organic-synthesis products ; (4) hot water.

These experiments indicated that both the formol products and the organomercuric derivants are unquestionably effective.

" Soaking the grain with formol, in the proportion of one third of a litre of commercial formol to 100 litres of water, for fifteen to twenty minutes, eliminates all trace of smut. It has, however, all the disadvantages of treatments by the wet method. If need be, concentrated trioxymethylene powders can be employed.

The organomercuric products in the form of dusts, at least those recognized as effective, are satisfactory and, apart from the precautions which have to be taken with preparations toxic to man and animals, their use is simple.

Insecticides and bee-keeping

On occasion of a broadcast, Prof. Malenotti of the Phytopathological Observatory of Verona, Italy, spoke of recent experiments carried out at this Observatory on the insecticide Tio-gamma and bees. These experiments have led to an important discovery. Gammahexane products sprayed on trees in flower did not kill the bees but kept them away for a few days, thus making it possible to destroy the cetonia and other insect pests without affecting the bees. Consequently, henceforth arsenates and other products injurious to bees, can be dispensed with.

New parasiticides brought under regulation in France

The French Ministry of Agriculture, in a Circular addressed to the Prefects (May 1948), prescribes the precautions to be taken in regard to new products for use in the control of crop parasites. It is recommended that only preparations which are not injurious to plants and useful animals and which are not opposed to public hygiene, should be approved.

New products presented for the first time to the ' Comité d'Etude des Produits Antiparasitaires ' for official approval, require to be examined beforehand by the Commission for the use of toxic substances in agriculture, particularly in order to ascertain their degree of noxiousness for man and useful animals.

This Commission decides the provisional measures to be applied, until the results of tests permit fixing the rules to be followed for the trade and use of the said products. The following rules are now to be observed in the case of all new parasiticides : (1) A report on the composition, utilization, results obtained, toxicity for man and animals, together with any other appropriate information, is to be forwarded to the aforesaid Commission. (2) Importers are not to introduce any quantity of the aforesaid products (except samples for testing) into France unless the Plant Protection Service has agreed to their application for official approval. Documents as above have to be presented.

These provisions must be strictly complied with on penalty of prosecution for infraction of the Law dated 2 November 1943.

HORTICULTURE

The Fruit Junta in Portugal

On completion of its first ten years in operation the Portuguese Fruit Junta devoted an issue of its Bulletin * to a description of the work accomplished.

Stress is laid on the importance of fruit trees and horticulture in Portuguese economy. The following table indicates, compared with other agricultural produce and better than a long discourse, the value of the products with which the Junta is directly concerned. As yet there are no separate statistics for fruit and horticultural products in Portugal, but the figures given in the Bulletin of the Junta may be taken as being fairly accurate.

After the end of the last century Portuguese fruit and vegetable exports suffered a severe crisis owing to the competition of the countries recently colonized by Europeans and also the fruit production of the United States, Canada, Central and South America, Asia Minor and Australia. In 1930 Portugal took steps to protect her fruit production and the Ministry of Agriculture drafted a program for a ' Fruit Campaign '. The object of this program

* *Boletim de la Junta Nacional das Frutas*. An. VII, No. 4, 1947.

PORTUGUESE AGRICULTURAL PRODUCTION

(*average production for the period* 1937-1946).

Product	Quantity in metric tons		Value in "Contos" [1]	
Cereals :				
Wheat . . .	407,255		1.057,153	
Maize	437,309		866,674	
Rye.	108,705		213,236	
Oats	98,697		160,753	
Barley . . .	61,176		115,647	
Rice	71,939		162,460	
		1,094,981		2,575,923
Pulses :				
Kidney beans	37,793		364,557	
Chick peas. .	11,888		106,922	
Beans. . . .	39,822		120,302	
		89,503		591,781
Wine		*8781,230		3,384,022
Oil		* 63,831		782,737
Potatoes. . .	734,475		1,989,840	
Truck crops [2]	500,000		500,000	
Fruits [3] . . .	300,000		450,000	
		1,534,475		2,939,840

* Hectolitres.

[1] Value based on the average prices paid to the producer in 1946.

[2] According to figures checked by the Junta, in 1946 consumption in Lisbon amounted to 56,011 tons for an approximate value of 94,341 contos.

[3] In 1946, consumption in Lisbon amounted to 29,611 tons (exclusive of fruit produced outside the continent) for a value of 90,995 contos.

was to propagate effective tested cultivation and economic methods and to set a rational basis for planting new orchards, and to organize the fruit trade. A Decree of July 1931 established the National Fruit Export Junta to deal with the last mentioned question. On the other hand, at the Ministry of Agriculture an arboriculture and horticulture division under the direction of the Agricultural Services was entrusted with research work and technical assistance. In December 1936, by another decree, the Junta was altered and called more simply the 'National Fruit Junta'; it began operations in 1937.

Its targets are to (1) arouse a spirit of cooperation and solidarity among the individuals engaged in the activities under its direction; (2) study the conditions under which the trade in fruit and horticultural products is carried out and aim at improving these conditions by proposing to the Government the measures deemed advisable; (3) direct, regulate and control the trade in fruit and horticultural products and inforce the laws and regulations in operation; (4) promote and organize the expansion of trade in fruit and horticultural products on domestic and foreign markets and effect the necessary propaganda; (5) protect the good repute and value of fruits and horticultural products on consumer markets; (6) advise the competent services of the Ministry of Economy on the requirements of domestic and foreign trade in order to regulate and improve production conditions; (7) give advice on all questions which the Ministry of Economy submits to it for examination.

The Junta has obtained effective results in the exportation of grapes, melons, chestnuts, pineapples, almonds, figs, carob beans, horticultural products and preserves. Before the war England, Germany and Brazil were the chief importers of Portuguese grapes. In 1940 exports to England and Germany ceased. Brazil imported very little in 1941, nothing at all in 1942 and 1943 and renewed trade in 1944. The situation is more or less the same for melons, with the United States also being an importer. This country also imports chestnuts and continued to do so even during the war, like Brazil and a few other countries. Since 1940 England no longer imports chestnuts. Pineapples, the principal fruit crop of São Miguel Island in the Açores, were mainly imported by Germany and England. In order to overcome the export crisis caused through the war, Portugal sought new markets in the United States, Spain, Switzerland and Sweden. The after-effects of the war greatly damaged the exports of other fruits such as apples and pears. Fig exports had gradually increased up to 1944, after which exports were limited as firstly domestic supplies had to be ensured. On the other hand, the economic depression now prevailing in the majority of the importing countries has caused a further drop in exports. From 1940, because of the war, exports of carob-beans diminished though the domestic market showed an appreciable increase; after 1946 the German market was replaced by Spanish and Czechoslovak buyers. Exports of dried and dehydrated fruits such as walnuts, hazel-nuts, pignolia nuts, plums, pears and raisins, though far from attaining the volume of the first mentioned fruits, increased considerably during the war on some European markets. There was a demand for these fruits because of their food value in condensed form, but this increase in exports was not accompanied by an increase in production, and consequently some of these products had to be put on quota and the maximum selling price on the domestic market fixed.

The chief horticultural products exported by Portugal are potatoes and onions. The Junta took steps to regulate production and the measures to be adopted for exportation. Here also the difficulties in ensuring home food supplies led to exports being prohibited from 1942 onwards.

Apart from pickled olives and more recently, tomato or pimiento pastes, the Portuguese canning industry deals mainly with luxury products for which there is a very small demand both on the home and foreign market, and does not contribute to the economy of the country according to its possibilities.

The Junta was instructed to organize and improve the domestic market in order to prevent an uneven balance due to the increase in exports : place of sale, sanitary inspection, official prices, trade organization, regulation of the wholesale trade in fruits and horticultural products. The Junta requested the collaboration of workers' and traders' organizations (*Gremios de Lavoura* and *Gremios de Commerciantes*).

Beginning in 1942, the Junta also concerned itself with the distribution of potatoes in order to solve the problem raised by the abundant supplies on the Lisbon and Porto markets and to eliminate the difficulties caused by buyers-up since the onset of the war. The Junta was at the same time instructed to regulate the monthly quotas for the trade in bananas for which the demand on the Lisbon market has greatly increased in the last few years.

The Junta collaborated very extensively with the Agricultural Divisions in the different branches of their activity and subsidized the Department of Pomology and the National Agricultural Station. It also took an active interest in floriculture and the cultivation of medicinal plants. Many economic studies and publications have been issued by the Junta.

A brief article in the first number of the Junta bulletin for 1948 indicates the fruit export trade in 1947. Exports of pineapples, melons and grapes were extremely reduced owing to the restrictions in force in some countries as regards green fruits. Only the chestnut exports approximated the quantities for normal years. Carob-beans have been greatly in demand for stockfeed, particularly by the Netherlands, Belgium, England and Switzerland. The demand for almonds and figs was smaller than previously. Potato exports have dropped as the countries which wish to buy do not have the necessary means of payment or transport. Onion exports have been below yield capacity. The only preserved products exported have been olives and paprika.

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The **French fruit production** for 1948 will be mediocre. The cherry crop varied considerably according to region, but was markedly below normal everywhere. The apricot yield was poor ; the total peach harvest, as estimated on 1 July 1948, amounted to 540,000 quintals, while last year which, however, was exceptional, produced 1,400,000 qls. The plum crop was better. The apple yield appears to vary greatly and pears, in general, are short.

The Agricultural Services calculate the table grape harvest will be 1,400,000 qls. instead of 2,065,000 qls. as obtained in 1947.

The walnut crop is expected to be mediocre.

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The XIIth **National Fruit Exhibition** was held in Verona from 7 to 9 August and all the important Italian producing zones were represented. The Fruit Growers' Congress took place at the same time and was attended, besides the Italian experts, by British delegates and by FAO officials. The questions treated included the biological value of horticultural products, genetic factors and biological factors in peach-growing, trade in and conservation of perishable fruits. A second Congress dealt with agricultural machines in horticulture, parasiticide implements, etc.

RURAL WELFARE

Rural Committee of the National Board of Belgian Women

(*Sent by the Belgian National FAO Committee*)

The National Board of Belgian Women, giving effect to the resolutions passed by the International Women's Council in Philadelphia in September 1947, has set up a Rural Committee.

The object of this Commission is to bring together institutions and women of note dealing with rural problems, and consequently, to coordinate their efforts. It is proposed to ascertain the most pressing rural problems by investigations among the different groups, and to draft a working program for their solution.

So far the social and economic position of the countrywoman has been very precarious : hard

and laborious work with an hourly remuneration below the industrial rate. One of the tasks of the Committee is to endeavour to improve this position by popularizing publications on the rationalizing of household work and on the use of electricity on the farm.

On the other hand, a reform of the technical training of the countrywoman is contemplated. Agricultural instruction must be adapted and reorganized to keep pace with modern progress in mechanization. These modern improvements will be widely diffused by the customary means of popularization (lectures, demonstrations, articles in the press, etc.).

Another problem which the countrywoman should be able to solve is the question of improving the quality of milk. The Committee intends to contact the public authorities and at the same time will undertake a campaign to educate the public in regard to the consumption and hygiene of milk.

The National Belgian FAO Committee has been requested to appoint a representative on the Rural Committee, since its objectives are among those under the aegis of FAO.

Rural construction in Sweden

An important rural construction improvement project is being carried out in Sweden through various organizations, the chief of which the L. B. F. ("Lantbruksförbundebs Byggnads Förening - "*Building Society of the Agricultural Federation*"), connected with the Federation of Farmers' Associations, has been working on a national plan since 1941. This organization has three central bureaux located in Stockholm, Lund and Vanersborg, and 18 district bureaux. It also cooperates with all the provincial agricultural societies, with the Woods and Forests, State construction bureaux, the Government research committee and the Board for building standardization.

The first objective of the organization concerns habitation, the second, farm buildings, stables, granaries, storehouses, assembly rooms, domestic science schools, agricultural colleges, etc. In order to obtain the desired results, the L. B. F. furnishes estimates, plans for new buildings and for the re-adaptation of old constructions; it provides facilities for the purchase of material and equipment and standardized construction with a view to reducing costs, it assists the farmers to obtain favourable contracts. All the members only pay the actual cost of the work executed without calculating the contractors' profit. The new Swedish farms and those modernized by these means have many comforts: running water, central heating, electric cookers, etc., modern stables, wash-house, etc.

NEWS FROM AFRICA

Olive-growing in Morocco

(*Information derived from a report presented before the XIIth International Olive-growing Congress by the Delegate of the Agricultural Division of Morocco*).

Among the thirty-three million fruit trees in Morocco, the olive ranks first with 9,300,000 trees. It is still the main source of edible vegetable fat, although the annual increase is too small to keep pace with the rising domestic demand. The unit yield per olive-tree is ridiculously low, 6.5 kg. on an average per tree. The period of over-production in fats which lasted from 1929 to 1935, affected Moroccan olive-growing leading to neglect and especially to ill-considered rooting up of the trees which was fortunately checked by severe legal measures. From 1936 to 1946, 2 million olive trees were planted but will not be able to cover the shortage for several years.

The olive-growing situation in Morocco may be summed up thus: "Enormous increase in requirements; production definitely insufficient; considerable advance in olive planting and regulations".

Olive-trees are distributed in Morocco as follows: some 5 million in the regions of Oudja, Fès, Meknès and Rabat, 4 million in the Casablanca, Marrakech and Agadir areas. In the northern zone (dividing line from Khenifra to Rabat and Casablanca), the olive produces without irrigation but irregularly; in the south, watering is essential. The groves are chiefly Moroccan (10 trees owned by Moroccans to 1 by settlers); they are generally in poor condition. The trees usually attain a height of 10 metres and over which necessitates beating the trees for the fruit, thus damaging the crop.

With a view to improving conditions, the Agricultural Production Division has organized pruning gangs. In the Marrakech region 89,000 trees have already been pruned, 72,500 in the Fès and 16,000 in the Meknès areas. The 1948-49 program provides for the pruning of 150,000 olive-trees in the Marrakech region alone. With the support of the district authorities, olive-tree care competitions have been opened for the Moroccan olive-

growers who have had at least some of their trees pruned.

Further plantings are indispensable if Moroccan requirements are to be met, and the efforts of the administrative authorities are aimed at establishing regional nurseries for the distribution of olive-sets.

The commercial production of olive oil in 1946-47 amounted to 7,500 tons. Production is very difficult to estimate owing to the fairly large number of native oil-mills (*masras*) which produce oil of poor quality, very acid and very low yield. These oil-mills were closed during the war for general economy reasons. Some native cooperative oilmills operate under the control of the district authorities, and there are also a few modern-equipped oil-works.

The table olive market was also completely controlled during the war.

Rural improvement sectors in Algeria

Last December the Information Service of the Governor General reckoned up the results of the agrarian reform work undertaken in Algeria since 1944 by the Rural Improvement Sectors, with a view to raising the standard of living of the peasant population. (*Documents algériens*, Série economique, No. 39 : *Paysanat*, 15 *décembre* 1947). The following data have been taken from this report.

The object of setting up the ' Secteurs d'améliorations rurales ' (' SAR ') was to establish impoverished native peasants on recuperated land (State, communal land, purchased private property) and, on the other hand, to educate and assist landowners and stockbreeders who, because of their antiquated methods of cultivation or faulty system of stockbreeding, only obtain paltry yields and poor quality products.

By 1 January 1946 eight ' SAR ' were in operation. They now number 81, including 19 new undertakings approved on 25 November 1947 by the Permanent Committee of the ' Paysanat '. The ' SAR ' are divided into different categories according to the groups of farmers to be instructed or settled : cereal growers, stockbreeders, arboriculturists, truck gardeners.

The cereal growers' sectors are allocated in the wheat-growing areas of Algeria. The peasants to be settled are given 10 hectares of land and have to keep to a biennial ploughed fallow rotation, whatever the crop program contemplated for the farm. This group of peasant farmers, by far the most important — cereals being the staple food of the Algerian population — covers a total area of 300,000 ha. Considering that some 3,000,000 hectares are grown to cereals in Algeria, the importance of a reform which, in a fairly short time, will increase present yields by one tenth, is evident.

The ' SAR ' is under the direct supervision of the Chairman of the district ' *Société indigène de prévoyance* = ' SIP ' (Native Provident Society) '. The technical management is entrusted to the technical officer of the ' SIP ' of the relative commune and the accounts are kept by the accountant of this ' SIP '. The necessary funds for the opening and working of the ' SAR ' are advanced in part by the ' SIP ' or by the ' *Paysanat* ' Committee of the Government General (which, in 1947, disposed of a budget of 400 million francs).

The main outlay in organizing a ' SAR ' goes to preparing the soil for tractor use, tools and equipment, seed loans. The equipment of the ' SAR ' composed of peasants already owning land, consists of some twenty tractors, 8 disc ploughs, 21 heavy ploughs, 3 stubble-ploughs, and light implements. There are over 1,500 head of draught livestock.

Very marked results have already been obtained in the marketing of the ' SAR ' crops. Progress has chiefly been made in the improvement of cultivation methods (deep ploughing in dry weather, use of fertilizers, rotation, etc.). The yields reported for the 1946-47 season varied according to region, but in every case showed an appreciable increase compared with those obtained by farmers not belonging to the ' SAR ' of the region. Not only have the crops and income of the peasants increased through the assistance of the ' SAR ', but their material situation, frequently precarious, has been improved. This social aspect of the reform is highly important for the evolution of the Moslem rural population. The housing question, a pressing need in some settlement areas, is nearing solution. For isolated farms and villages, account is taken, as far as possible, of local building resources. The ' SAR ' are destined to become the nuclei of the surrounding farms, an objective which has already been reached in some instances.

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Tunisian wine-growing is well on the way to recovery. In effect, statistics show that in 1934, 45,000 hectares of vineyards were in bearing. On the eve of the war, this area had already diminished to approximately 42,000 ha., but the subsequent reduction through the want of cultivation care and products for disease control became ever more marked until in 1946, an all-time low was reached with 23,000 ha. Efforts to build up the Tunisian vineyards began in 1947, year when the area increased to 25,000 ha. Prospects for 1948 are favourable, but it is not expected that the vintage will exceed 550,000 hl. of wine. Some cases of downy mildew have been reported. There are no reserve stocks and it will rather difficult to maintain a sufficient supply to last up to the next vintage.

Sanitary barriers in Africa

On 1 March 1948 the Pasteur Institute of Algeria published an article on the necessity of sanitary barriers. The summary runs as follows :

" The pacification of the Sahara and power improvements have eliminated the difficulties which hindered traffic and trade across the desert expanses. There is another aspect, however : the Sahara no longer opposes impassable barriers to the spread of infectious diseases.

" The increasing facility of Trans-Saharan transport entails a danger of spreading two diseases throughout North Africa which would have disastrous effects, namely, cattle plague and the ' baïoudh ' disease of the date palm.

" Cattle plague which arrived in Egypt from the North in 1884, subsequently swamped all black Africa and there is a risk of white Africa being invaded from the south or the east. The ' baïoudh ' disease, originally located in south-west Morocco, threatens, from the west through to the east, to attack the rich palm-groves of north-eastern Sahara.

" There is one safeguard against this appalling risk : these two infectious diseases are both contracted by contagion and consequently police measures will suffice to prevent contamination. Sanitary customs inspection will effectively bar the way to cattle plague and to ' baïoudh ', provided that it is strictly applied with the greatest attention "

FAO ACTIVITIES

The United Nations and the World's Food

(*Statement by the* **Honourable Norris E. Dodd,** *Director-General of the Food and Agriculture Organization, to the General Assembly of the United Nations.*

Before this great world assembly, which multiplies itself by the millions of people in all lands represented here, I ask your leave to speak for a few minutes about such homely things as a loaf of bread, a bowl of rice, a cup of milk in a child's hands.

Reduced to these simplicities, the subject may seem scarcely worth the attention of this globe-encircling body. Yet the daily loaf of bread, the bowl of rice, and the other foods they typify are life itself to the two thousand million men, women and children you represent.

You all know too well that there has never been enough bread and rice to feed everyone well. For some, at times, there have been only famine and death. Even the terrible post-war hunger crisis from which the world is now emerging is of less importance than the great hard fact behind it.

This fact is that we have not yet turned the tide against hunger. Neither the care and development of our resources, nor the application of modern science to the increase of production, nor the improvement of distribution, have kept pace with the growing needs of our growing world.

Tomorrow morning there will be 55,000 more persons for breakfast than there were in the world this morning, and the day after tomorrow, 55,000 more, and so on daily — 20 to 25 million more people annually. But we are not producing 55,000 more cups of milk a day for the new children, nor 55,000 more loaves of bread, nor 55,000 more bowls of rice.

The world's food production is too small and too unevenly produced. The distribution of food is too unequal and is impeded by too many bottlenecks. The principles of nutrition are not being generally observed in planning for and in utilizing food supplies. The resources from which food, clothing, shelter and much of our fuel and industrial materials must be produced are being unnecessarily and far too rapidly depleted.

As long as these things are true, the world cannot be well fed and the situation is deteriorating. The sense of urgency which we feel in this task is accented by the increasing world population. Estimates indicate a growth since 1938 of 200 million persons, an annual growth of 20 to 25 million persons, and a present total of about two and a third billions of human beings.

The food production programmes of the various countries, insofar as they have been reported to FAO, indicate that the total output of foods by 1950-51 — assuming that we have no catastrophe — may not exceed the pre-war average and it was not large enough for the smaller pre-war population.

I re-emphasize these facts to this Assembly not as a prophet of doom, but only to highlight the critical need for action in this crisis in mankind's affairs which we dare not disregard.

When we see what man has done in science ; when we see what immense good-will and organizing sense have gone into the creation of the instruments of human progress such as this very Assembly, we cannot doubt that we are capable of meeting the

challenge, if only we give it the priority it must have in our concerted efforts.

I offer no easy and painless solutions. Yet I see the possibilities of successful attack at several points. The necessary actions fall under three headings :

We must increase food production and reduce waste.

We must adopt effective programmes to improve the distribution and utilization of food.

We must make the soil secure — it is our resource base.

To improve the situation rapidly and permanently we must do these things concurrently, every nation contributing individually and all working together through the United Nations and the Specialized Agencies.

In the last century, enormous new food supplies were developed by the opening of new continents. We now have no new continents to open. Not only that, but in the last 10 years we have added a population equivalent to that of a continent.

There are possibilities, even though limited, of opening new lands, and of enhancing the production of lands already being used by irrigation and drainage.

Other than such possibilities, the production of more food for the world rests upon increasing yields from already developed lands. Consider one illustration of the potentialities lying in wider application of advanced techniques. Hybrid seed is estimated to have increased North American maize production at least 20 per cent in a few years' time. Such an increase, if realized in Europe through steps already begun with the help of FAO, would mean 3 ⅓ million metric tons more corn (maize) to increase milk and meat production. This is about one-third of the approximately 9 ½ million metric tons of coarse grains Europe imported annually before the war and which it is estimated will be needed by 1950-51 to support agricultural plans.

An indispensable attack upon the problem of increasing production is the establishment in the countries now lacking them of really adequate public systems of agricultural research, education of research workers and leaders, and agricultural extension or advisory services so that the advances of science may be put to work by farmers. For the very reason that this is a long-term attack, it must be put under way the sooner.

As production is improved, the mass of rural people must share in the additional proceeds of their labour. As they are better fed, housed and provided with more community services which others enjoy, they will make a more effective and a more willing contribution to further advancement. In these matters of research, education and social welfare, some help can be given from the outside, and FAO is here to give such help. But the real progress must be built slowly from within, on each nation's own foundation.

A tragic amount of the vast effort which goes into producing food which human beings need is wasted. Last year rats, insects and fungi destroyed as much bread grains and rice as went into world trade, some 33 million tons. The loss of rice alone is estimated at 12 million tons from all causes. This is nearly twice as much rice as moved annually in international trade before the war and four times last year's movement.

Not all of these losses are preventable. But if only 10 or 20 per cent of the 33 million tons of breadgrains and rice could have been saved — and this is quite practicable — millions of people instead of millions of rats could have been better nourished.

FAO has sponsored international meetings of experts on infestation of foodstuffs, offers the help of technicians, and soon will launch a world rice conservation campaign, in efforts to stop food being stolen from the very plates of the world's hungry.

Not only is national action necessary to reduce the losses of foodstuffs in storage, but international agreement is required to prevent the transfer of harmful insects in cargoes from port to port. Nor are the losses restricted to foodstuffs in storage and transit. Insect pests and plant diseases cause huge crop losses in the field. These demand constant vigilance, and fortunately science has given us new and effective weapons against many of these destructive agencies. International co-operation is needed also to combat the depredations of locusts, which annually take a heavy toll of the world's field crops. In this matter, too, member nations are organizing for common action with FAO's help.

If the world is to be better fed, there must be stability of agricultural prices at levels which will encourage the producers to continue making the investments necessary to large-scale efficient production. These investments are often heavy and must be committed for rather long periods ahead. An increasingly urbanized world cannot do without production from the specialized export-surplus producing areas in which the problems of instability are most acute.

If we always plant enough to produce the plenty that the world needs, there will be times and places when the harvest is temporarily too much for the market. The cost of this must not be passed back to the farmers in collapsed markets and ruinous prices. For the benefit of having enough, the urbanized world must help bear the producers' burden.

Having said that the world has never been well enough fed, I will not speak of surplus. So I shall say that what the ruined producer has called sur-

pluses are really the world's failure to solve the problems of distribution and marketing in a rational way.

Programs for increasing food production and for improving distribution only postpone the reckoning so long as the uncontrolled destruction of soil resources continues.

Soil erosion — not the removal of nutrients through cropping — accounts for most of the loss of soil fertility caused by man's activity. Millions of acres are destroyed annually by erosion, lowering the production potential of millions more, clouding streams, clogging reservoirs, causing floods. We certainly cannot feed a rising world population from a disappearing resource. On the other hand, soil, water and forest resources, if properly handled, are renewable and can even be made more fruitful.

I do not mean to neglect the possibilities of further developing the food resources of the seas and inland waters. Exploration and proper development of the production, the processing, the transportation and the utilization of fish foods can add immensely to the protein food supply, which we need particularly. This also can help relieve the pressure upon land for food production. FAO is active in this field. I speak chiefly of the land resources because they are now being pressed most desperately and must therefore be our first concern.

Let me return now, in closing, to the question of co-ordinated action among the specialized agencies. The 1947 FAO Conference requested the Economic and Social Council to give increased food production the highest priority in economic reconstruction and development. During the past year, FAO has brought to the attention of the Economic and Social Council the need for co-ordinated action to meet the continuing food crisis, and the Council has asked FAO, in consultation with other appropriate specialized agencies, to provide information upon the increases in food production which might be achieved and how the obstacles might be overcome by coordinated action.

The world is slowly overcoming the damage to agriculture resulting from the war. The outlook for the coming year is favourable for still further gains.

But in many countries shortages of farm machinery, fertilizers and seed retard production. Shortages of incentive goods to encourage production and of facilities for transportation are deterrent factors in some situations. In many places development of irrigation or drainage schemes could result in very substantial increases in production. The meeting of these needs requires in some cases long-time investments of considerable capital. In some cases only the establishment of fairly simple industrial facilities may be needed.

Certain countries have great natural resources for production of industrial as well as agricultural goods. Farmers particularly need industrial goods in order to produce the food which the world needs.

Not only in the field of economic development and stability, but in other matters important to food production there is need for the machinery of the Specialized Agencies to work together.

The best machinery is only cold metal until it is energized and directed by firm and purposeful minds. FAO feels entitled to ask that the world food problem should have top priority. We ask each member of the family of United Nations organizations for their full co-operation in the campaign against hunger. We ask each nation through its membership in these organizations as well as in FAO to express by concrete action its determination to made this machinery work for a secure and plentiful food supply.

This is not for the sake of FAO. It is for the sake of mankind. A concerted attack on the world food problem will prove that the world has recognized the great crisis and can meet it. It will prove more. It will prove that through co-operation against the common enemy of every man, we may learn to co-operate in an ever widening degree in the construction of one good world in which we must all live.

Director-General of FAO visits Europe

Mr. Norris E. Dodd, the second Director-General of the Food and Agriculture Organization of the United Nations has been in Europe recently in his official capacity.

He first of all attended the meeting of the Joint Committee on Agricultural Problems of both the Economic Commission for Europe and FAO which was held in Geneva from 8 to 11 September. This Committee was set up under a resolution of the Economic Commission for Europe — abbreviation ECE — as a joint organ of ECE and FAO in order to ensure the closest collaboration in the task of helping the European countries develop steps to increase European food production. At the Committee's opening meeting, Mr. Dodd, in fact, said that the present basic objective must be greater use of European agricultural resources in order to meet European agricultural requirements as far as can be done on a reasonably economic basis. He pointed out that farmers cannot be expected to extend and intensify their production efforts, unless governments will find means to protect them against the disastrous falls in agricultural prices which in the past have often followed periods of agricultural expansion.

From Geneva, Mr. Dodd went to Florence, Italy, where, in the ancient Academy of Georgofili, on 13 September, he inaugurated the International

Soil Conservation Meeting. He stressed the necessity of wise use of land and said that the problems dealt with at this meeting are not only basic to the accomplishment of FAO objectives but to the welfare and happiness of the people of each country.

Afterwards Mr. Dodd left for Rome to visit the European Regional Office of FAO. Mr. A.H. Boerma, the Regional Director of FAO for Europe, with Mr. Albert van Houtte, Secretary of the European Regional Office, met the Director-General in Geneva and accompanied him on his tour to Rome. Here Mr. Dodd had talks with Mr. Segni and Mr. Ronchi, the Italian Minister of Agriculture and the High Commissioner of Food respectively. On 15 September, he had a private audience with Pope Pius XII at the papal summer residence in Castel Gandolfo.

On 16 September, the Director-General held a Press Conference in the Library of the European Regional Office of FAO. He stated that the traditions established progressively in Rome by the former International Institute of Agriculture were

The Hon. NORRIS E. DODD (left) and Mr. A. H. BOERMA *at a Press Conference held at the Library Building of the Regional European Office in Rome*

affording useful guidance to FAO in the pursuit of similar results. The scope of FAO is however, substantially wider than that of the Institute. The fact that the World's population has a steady daily increase of 55,000 while it is improbable that much additional land can be brought under cultivation constitutes the gist of FAO's problems. In answer to a question on this subject, however, the Director-General replied that it would be possible to feed even this evergrowing population if concerted international action could bring to an end the present waste caused by food pests and if an equitable food distribution and improved farming technique were to be generally realized.

Mr. Dodd's then visited Paris where he addressed the General Assembly of the United Nations.

The new Director of the European Regional Office of FAO

Mr A. H. Boerma was appointed Regional Director of FAO for Europe by Mr Norris E. Dodd, Director General of FAO, on July 1, 1948. Acting on instructions of the Director-General he will be responsible for all FAO activities in Europe and will be the head of the European Regional Office of FAO in Rome.

Mr Boerma was born in the Netherlands on 3 April 1912. He studied agriculture at the Agricultural University at Wageningen and after three years' work with one of the Netherlands Farmers' Organizations he took up a post in the Ministry of Agriculture in 1938. He acted as adviser to the Food Office and in 1942 he was appointed Director of the Crops Marketing Board. In 1943 he was appointed Government Commissioner for Food and Agriculture for the liberated territory by the Netherlands Government.

Since 1945 he carried on the same activities as Deputy Director General of Food and in 1946 he was appointed Government Commissioner for Foreign Agricultural Relations.

In this function he had much to do with FAO and its activities and attended the second and third sessions of the FAO Conference held respectively in Copenhagen and Geneva. He was the Netherlands representative at many other important international meetings, in particular the Preparatory Commission on World Food Proposals. He was appointed representative of the Netherlands to the Council of FAO (World Food Council).

On July 1, 1948 he was created Knight of the Order of the Lion of the Netherlands by the Queen.

World Food Council holds third session

The Third Session of the Council of FAO (World Food Council), held in Washington, 17-20 August, considered mainly, together with the Director General of FAO, the advance preparations for the Fourth Session of the Conference of FAO, which is to be held in Washington on 15 November, 1948. The Council recommended that the work of the Conference should be divided into three categories — similarly as with the Third Session of the Conference in Geneva, 1947 — *i.e.* annual review of the world situation in regard to production, marketing, consumption of food and agricultural products, including fish and timber; discussion of the technical activities of FAO during the preceding twelve months and of its programme of work for the ensuing year; consideration and discussion of constitutional, administrative and financial issues.

The Council of FAO further commended the initiative taken by the Director-General in preparing the Draft Budget of the Organization in terms of a plan of activities. This involved a process of selection and sifting of the multiple and diverse lines of activity in which FAO could usefully engage, since within the limits of its financial means, the Director-General cannot possible undertake all the various requests and projects which have been referred to him by previous Conferences. The Council felt it could not go into the details of these documents, on which only the FAO Conference can pass final judgement, but it made a number of observations which will be forwarded to the Conference. The emphasis placed upon the development of regional activities in the Programme for 1949 was particularly recommended by the Council.

The Council dealt further with a number of financial and administrative matters; it approved in particular the suggestion that, concerning the choice of site for FAO permanent Headquarters, all available data should be collected on the potential sites.

In the absence of the Chairman and Vice-Chairmen, the chair was taken by the Honourable P. R. Viljoen, Representative of the Union of South Africa.

The fourth Session of the Council will be held on 8 November 1948.

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Two major appointments are announced in the Food and Agriculture Organization of the United Nations at Washington by FAO Director-General Norris E. Dodd.

Mr. Marc Veillet-Lavallée, of France who has been serving as Senior Executive Officer and Secretary to the FAO Council, has been appointed Special Assistant to the Director-General. In addition to assisting the Director-General in the policy management of FAO affairs, his responsibilities will include relations with Member Governments of FAO, with FAO National Committees and with other international bodies, as well as Conference and Council matters.

Mr. Frank Weisl of Czechoslovakia has been appointed Director of FAO's Administrative Division. As such, he will bear major responsibility in the determination of administrative, financial and personnel policies affecting headquarters and regional offices.

Food and Agricultural Problems

Mr. Frederick B. Northrup, Secretary-General of the International Emergency Food Committee (IEFC) of the FAO Council and Director of FAO's Distribution Division, visited Europe with Mr. Gordon P. Boals, Secretary of the IEFC Cereals Committee, Mr. Harold Knight, Secretary of the IEFC Fats and Oils Committee, and Mr. Albert Viton, Special Assistant to Mr. Northrup. The main purpose of their visit was to advise the Office of European Economic Cooperation of the 1948-49 agricultural programs affecting commodities under international allocation. In addition to that, during their visits to England, the Netherlands, Belgium, western parts of Germany, Italy, and France, they contacted the respective government representatives and conferred with them on the various food and agricultural problems especially those regarding the imports of commodities falling within the scope of IEFC activities.

The International Emergency Food Committee of the FAO Council, formerly International Emergency Food Council, was created, as will be remembered in June, 1946 to allocate short supplies for the duration of the world food emergency. Seven IEFC Commodity Committees are now active. They cover cocoa, rice, cereals, fats, and oils, nitrogen fertilizers, seeds and feeds. The eighth Committee on Beans and Peas was recently dissolved following a decision of IEFC to discontinue for the time being the allocation of these commodities.

The recommendations of IEFC have met with a high degree of compliance by member governments. Mr. Northrup gives overall direction to the work of the IEFC Committees in preparing these recommendations.

Meeting of Experts on Infestation Control

A large part of the world's food stock is yearly menaced by rats, insects, and fungi which, for example, destroyed about 33 million tons of breadgrains and rice in 1947. Were it possible to cut these losses by even one tenth a year, some three million tons more food could be made available for human beings.

Consequently FAO has placed the dissemination of information on food pest control at the head of its priority list. In order to coordinate the research work and give an impetus to these activities, an international meeting of specialists on Infestation Control was convened by the European Regional Office of FAO, in Florence, Italy, September 6 to 17, 1948.

The meeting enabled the delegates to compare notes on the latest methods and techniques of fighting various food pests. A detailed description of all sources of infestation was given and the participants acquainted themselves with the modern equipment and means of infestation control.

Lectures and demonstrations by outstanding experts were given. Among the experts were

Mr. Stephen Easter, FAO entomologist; Miss D. M. Lawrence, rodent control expert, United Kingdom; Professor Antonio Melis, Director of the Entomology Station in Florence; and Mr. Wichmand, Director of the Pesticides Laboratory, Copenhagen. Other delegates assisted in discussions and demonstrations.

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Mr. František Hrosso, chief of the Pedology Institute in Bratislava who attended the International Meeting on Soil Conservation at Florence visited the European Regional Office of FAO in Rome. He intends to submit a brief report on the Florence Soil Conservation Meeting to a gathering of Czechoslovak experts and workers of the Agricultural Experiment Stations to be held under the participation of Polish delegates in Kosice, October 6-8, 1948.

FAO Agricultural Studies

In No. 6 of this Bulletin, we mentioned two publications issued recently in the series entitled 'FAO Agricultural Studies'; No. 1, "Breeding Livestock adapted to unfavourable environments" and No. 2, "Preservation of Grains in Storage". Nos. 3 and 4, "Using Salty Lands" and "Soil Conservation" were mentioned in our Bulletin No. 5.

No. 5 of the 'FAO Agricultural Studies' is a new publication prepared by Richard T. Allman and T. S. Hamilton with the title "Nutritional Deficiencies in Livestock", and was issued in Washington in May 1948.

This 102-page study examines the relations between soil and nutritional deficiencies, gives valuable suggestions on well-balanced rations for livestock, and informs on clinical symptoms of dietary deficiencies. It shows how important it is to feed well-balanced rations, how drastic may be the results when extremely small amounts of certain elements or vitamins are omitted, and how these deficiencies may be made good with a view to conserving grains for human use, stretching available feeds over a larger livestock population, and increasing the amounts of meat, milk, and eggs available for human use.

The publication may be obtained at the price of 1 U.S. dollar from the sales agents for FAO publications, or from FAO Documents Sales Service, Food and Agriculture Organization, 1201 Connecticut Avenue N. W., Northwest, Washington 6, D. C.

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"Timber Statistics for the years 1946-1947 — Statistique de Bois pour les années 1946-1947" was published in Geneva in March 1948 by FAO and the Economic Commission for Europe. This 39-page publication gives, in 24 statistical tables, world data on sawn softwood and hardwood, pit-props, ply-wood, building-boards, and exports and imports. The accompanying text is in both French and English.

Report of the FAO Mission for Poland

The "Report of the FAO Mission for Poland" was published in mid-June 1948. This 160-page publication with two maps and 109 half-tone plates contains the findings of the 10-man FAO Mission, headed by Mr. Noble Clark, which visited Poland between 4 July and 4 September 1947, at the request of the Polish Government. Its purpose was to study the economic and technical problems involved in the rehabilitation and improvement of the food supply, agriculture, forestry and related industries of Poland. The Polish Government requested that special attention be given to the improvement of human nutrition, especially that of children and young people, and to the development of food production on small family holdings sufficiently to meet the domestic and export requirements of the nation.

"The food supply agriculture and forestry of Poland are in a state of emergency", states the Report; "there are great possibilities for improvement but their realization will depend on the permanent adoption of policies and practices widely at variance with some of those that have been traditional in Poland, and equally at variance with some that have been recently devised",

The report then goes on to give a closely integrated series of recommendations to improve the Polish food supply and housing situation, including the following:

A rationing system designed to bring about an equal sharing of scarce basic foods; the use of more commercial fertilizers to offset the lack of animal manure occasioned by wartime losses of farm animals; the growing of more leguminous crops to add nitrogen to the soil and supply feed for dairy cattle; improving the milk supply for Polish children; measures to stop contamination of milk supplies; vastly increased emergency production of timber for housing; restoration of agriculture in the devastated areas and new territories; divorcing scientific and educational activities from "all commercial, political, and other biases"; restoration of Poland's depleted livestock; re-establishment of scientific contact with other countries; extensive land improvement, including the regulation of streams and the mining of peat; eventual employment of more Polish people in industries than on farms; release of farm housewives from field labour

to give them more time and energy for their homes and families ; " a profound change " in the traditional Polish diet, to include more protective foods ; development of an export trade in high-quality products ; careful review of government collection and use of revenues in order to make the best use of its human and natural resources ; arrangements for international loans to assist in the country's recovery.

The FAO Mission for Poland visited all parts of the country, interviewed hundreds of people in all walks of life, and wound up after two months of intimate study of Poland and its people with " profound respect " for the big job Poland has ahead. It compliments the Polish people for the energy with which they have attacked their problems.

The report in full is published by FAO in the English language.

An abridged edition in French has also been issued.

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The first regular number of the FAO " **Monthly Bulletin Food and Agricultural Statistics** " was issued in Washington in July 1948. It contains tables on cereals, cotton, lint, dairy and meat production, wheat and wheat flour, rice and copra trade, and prices of agricultural products. It is intended to have these regularly recurring tables revised from month to month as the latest information becomes available. Figures presented in the Bulletin are, as far as possible, taken from official publications or from questionnaires returned by the respective countries to FAO. In cases where data are not available from either of these sources, unofficial estimates have been used and are so indicated. As additional material becomes more regularly available, new tables and new series will be presented.

The Bulletin may be ordered from the FAO Documents Sales Service 1201, Connecticut Avenu , N.W. Washington 6, D.C., U.S.A., or from FAO local sales agents at the price 25 cents.

FAO Commodity Series

In addition to information previously included in No. 6 of this Bulletin, on the five publications so far issued by FAO in the Commodity Series, we should now like to draw your attention to the latest three documents published.

No. 6 of the Commodity Series under the title " **Vegetables and Fruits** ", **No. 1 (a study of current problems in Europe)** " is based upon material contained in the report of the International Meeting on Horticulture convened by FAO in Rome on 17-19 March 1948. It is concerned with a particular problem which was drawn to the attention of FAO during the Third Session of its Conference in Geneva in 1947, *viz.* the difficulties experienced by several countries during the past two years in exporting certain types of fruits and vegetables. The publication provides some factual information about the current problems, whereas a continuing service of production and marketing intelligence will be needed to give the longer term outlook. (34 pages, 21 tables in text, 20 statistical tables as appendices).

Our readers will remember that we gave a short account of the International Meeting on Horticulture held in Rome in No. 5 of " Food and Agriculture " on page 410, and that an extract of its report was reprinted in No. 6 on page 493.

" **Rice Bulletin No. 1** " was issued — as No. 7 of the Commodity Series — in June 1948.

The 32-page study with 7 statistical tables (in the text and appendices A-G) on world production, exports, imports, calendar of rice harvests and the recommended allocations for 1948, deals with the ' staff of life ' for nearly half the peoples of the world. It shows that between the two wars production of rice in South and East Asia increased by less than 10 % while the population increase in the same region amounted to more than 20 %. To feed these people world production of rice needs to be increased annually by at least 1.3 million metric tons.

The acute shortage of rice in South and East Asia, where more than 90 percent of the world's rice is consumed, has also created an abnormal demand for substitute food grains, which are themselves scarce. It has also induced greater consumption of oilseeds in Asiatic producing areas and so has reduced the supplies available for export to Europe and America. Thus the rice shortage has had a serious effect on the food economy of the world as a whole.

No. 8 of the Commodity Series in " **Sugar Bulletin No. 1** ", published in July 1948. This 30-page publication with 9 statistical tables on area and production of sugar beets and sugar cane, output of raw sugar and sugar trade, contains a list of sugar prices in selected countries and reprints the text of the Sugar Agreement of 1937. Information is given on the sugar supply situation and outlook, sugar production, international sugar trade and sugar prices.

Copies of all three publications may be obtained for 25 cents from the International Documents Service, Columbia University Press, 2960 Broadway, New York 27, N.Y. and from FAO sales agents in other countries.

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As No. 1 of FAO Nutritional Studies a new publication " **Rice and Rice Diets, a Nutritional Survey** " — price 75 cents — was published in Washington in September 1948. It is a revised document prepared by the Nutrition Division of FAO for a Committee of nutrition workers from

countries in East Asia which met in Baguio, Philippines, in February 1948.

The publication deals with the nutritive value of rice — staple food of more than half the human race —, with rice diets and ways and means of improving nutrition in rice eating areas. It shows that the improvement of rice diets is a wider problem than the prevention of beriberi. Undernutrition, malnutrition and deficiency diseases are common in rice-eating countries. Unfortunately, the existing agricultural conditions and poverty make a substantial increase in the supply of milk, meat and eggs scarcely feasible. The survey suggests however that large supplies of fish, vegetables and pulses could readily be made available to the population.

The publication contains 21 tables giving the latest scientific data on rice and problems resulting from rice diets.

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No. 3, May-June 1948 of **Unasylva**, the Bulletin of the FAO Division of Forestry and Forest Products, is dedicated to the Latin-American Conference on Forestry and Forest Products held at Teresopolis, Brazil, 19-30 April 1938. It brings the message from Sir John Boyd Orr to the Conference, opening address by Mr Leloup, Director of FAO's Division of Forestry and Forest Products, resolutions of the Conference, list of the delegates and representatives, FAO working papers submitted to the conference, as well as the documents presented by the delegations, and a survey of FAO's work on forestry and forest products statistics.

FILM EXCHANGE

We should like to apprise our readers that many of our member countries have agricultural films at their disposal which they would like to exchange with other member nations. This is the first attempt to lay the foundations of an FAO European Exchange of Films on Agriculture and Nutrition, as well as an Information Centre.

The following nations are interested in the scheme : Belgium, Czechoslovakia, Eire, Finland, France, Hungary, Italy, Luxembourg, Netherlands, Norway, Switzerland, United Kingdom.

The **EUROPEAN OFFICE** has at its disposal **seven films** which can be borrowed after application to this office :

(1) The World is Rich (The story and aims of FAO. At present on loan to Egypt and Ethiopia). *British film* - (16 mm., sound)

(2) Common Concern. *Canadian film* (16 mm., sound) :

U. S. FILMS (16 mm.) :

(3) Saving the Garden Crop. (4) Vegetable Insects. (5) Strange Hunger. (6) Curing Pork Country Style. (7) Freezing.

The last five films have been supplied by FAO especially for the use of the ex-UNRRA countries and are at present on loan to several of these countries.

We give below a first selection of films available for exchange in Czechoslovakia, Finland and the United Kingdom. We have also lists of many films available in Hungary, Netherlands, Norway, and Switzerland which we hope to publish at a future date.

CZECHOSLOVAKIA

(1) Hauling of Lumber. (2) Hauling of Logs. (3) Mountain Pastures. (4) Mechanization of Field Work. (5) Agricultural News. (6) Breeding of Sheep. (7) The Forest. (8) The Pig. (9) The Third Revolution (New Agricultural Methods). (10) Cleanliness and Handling of Milk. (11) Mechanization in Cowsheds.

FINLAND

SOUND FILMS, SPOKEN IN FINNISH ONLY (16 mm.) :

(1) Our native sheep-economy (Sheep-farming and manufacture of its products) (2 parts). (2) Milk as a Source of Health, and the uses of Milk (2 parts). (3) Care of Milk (2 parts). (4) In the Apple-orchard

of the Garden of Ala-Leru. (5) Flax – its cultivation and preparation in the home. (6) Pellervo – 40 years of agricultural cooperation. (7) Our food, and a health diet (2 parts). (8) Importance of Forest Management and Timber-working Industries. (9) An improved Forestry. (10) Pisciculture in Finland. Pisciculture plants in operation. (11) Winter fishing a Rymättylä. (12) From ore block into mother rock. (13) Popular sports at Ruovesi. (14) Turnips from a burnt-over field (Ethnographic description). (15) Burnt-land (Ethnographic description). (16) Wintersports.

SILENT FILMS (16 mm.) :

(17) Eggs – their trade and uses in domestic economy (2 parts). (18) Pig-breeding (3 parts). (19) Water-fowl. (20) Finland's green gold. (21) Summer fishing at Rymättylä. (22) Winter Baltic sprat fishing at Rymättylä.

UNITED KINGDOM

This is a list of films in possession of the British Embassy, Rome, which can be obtained for showing, on application. We give the languages in which they are available. We have also lists of official films ; as well as of non-official films prepared by the Scientific Film Association and a list of agricultural films prepared by the British Film Institute.

ENGLISH AND ITALIAN FILMS (25 mm.) :

(1) Winter on the Farm. (2) Crown of the Year. (3) The Crofters. (4) Cornish Valley. (5) Fen lands. (6) North East Corner. (7) World of Plenty.

ENGLISH ONLY (35 mm.) :

(8) B. W. D. (Bacillary White Diarrhoea). (9) The World is Rich.

ENGLISH ONLY (16 mm.) :

(10) Clean Milk. (11) Welding Helps the Farmer. (12) Making Good Hay. (13) Potato Growing.

ENGLISH AND ITALIAN (35 mm. and 16 mm.) :

(14) The New Crop.

ENGLISH ONLY (35 mm. and 16 mm.) :

(15) Make Fruitful the Land.

ITALIAN ONLY (35 mm.) :

(16) Power on the Land.

For further details, application can be made to the Information Service, European Regional Office of the Food and Agricultural Organization of the United Nations, Rome or to the FAO National Committees, whose addresses are given on the inside page of the back cover.

U N O

Second Session of the Industry and Materials Committee of the Economic Commission for Europe

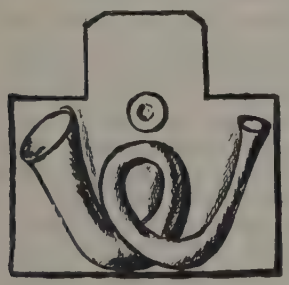
Seventeen of the Member States of the Economic Commission for Europe took part in the last Session of the Industry and Materials Committee, and reached agreement on a number of questions, in which cooperation was indeed required.

The necessity for all the countries of Europe to lend one another assistance was unquestionably admitted by all. Some countries possess the raw materials necessary to other, more highly industrialized, countries. On the other hand, the first countries stand in need of equipment, which the second can supply, for extracting the raw materials which, in turn, will enable industrial countries to increase their production. It was on this basis of mutual interest and inter-dependence that the Committee set about its work. It was decided to link up the Sub-Committee on Fertilizers with the *ad hoc* Committee on Agricultural Problems. The Sub-Committee on Fertilizers will continue to watch carefully the studies undertaken on current agricultural problems.

The other agenda of the Session comprised some specific industrial problems like alkalis, ballbearings, ceramic insulators, electric power plant equipment, automotive spare parts, lead, and wood pulp. With regard to the last point, the French Delegation urged that the question of wood pulp be added to the Agenda, stressing the importance which the supply of cellulose for European needs is now assuming, especially as a result of the increased consumption of newsprint and of the development of the artificial staple-fibre industry. Several representatives supported the French Delegation, amongst them the representative of Yugoslavia, who announced that his country could produce more wood pulp if it possessed the necessary equipment.

A Resolution was adopted which requested the Executive Secretary to make a study of European needs of wood pulp, to enable the Industry and Materials Committee to take appropriate steps to improve the situation. The representatives of Sweden and Finland, who considered that the question was rather one for the Timber Committee, reserved their position on this.

NEWS IN GENERAL



FAO seminar for European youth

The Belgian and French National FAO Committees organized a seminar from 12 to 18 September last for European youth to become acquainted with the general objectives of FAO. This seminar was held in Touraine (France) against a background of historic castles and guildhalls of the region.

Four nations sent participants : Belgium, France, the Netherlands and Switzerland, only lack of time preventing the other countries from taking part. The participants were selected from high school students or from young members of agricultural associations.

Besides technical lectures and visits, trips were made to points of historical interest.

According to the reports of the participants this seminar may be considered a success, and the Belgian National FAO Committee hopes to repeat it next year.

CONGRESSES AND MEETINGS

Congresses and meetings

September	11 to 16	*Prague*, World Congress of Chambers of Commerce.
	13 to 15	*Lausanne*, International Conference on Agricultural Mechanization.
	14	*Genoa*, International Trade Exchange Congress.
	20 to 30	*Prague*, XVIIth International Cooperative Alliance Congress.
	23 to 25	*Angers* (France), 79th Session of the Pomology Congress of France.
October	6 to 8	*Paris*, VIIIth Congress of Biological Chemistry.
	11 to 23	*Copenhagen*, International Meeting on Food Preservation, (FAO).
	18	*Beyrouth*, UNESCO Conference, 3rd Session.
	19	*Kabeta* (Kenya), Rinderpest Control Meeting (FAO).
	26	*Cairo*, ILO, 2nd Session, Industrial Textile Committee.
	26	*Washington*, Standing Advisory Committee on Rural Welfare (FAO).
November	8	*Washington*, FAO Council - 4th Session.
	15	*Washington*, FAO Annual Conference - 4th Session.
December	1	*Washington*, Standing Advisory Committee on Agriculture (FAO)
	2 (provisional)	*Washington*, Standing Advisory Committee on Nutrition (FAO).
July	21 to 28 1949	*London*, 2nd International Congress of Crop Protection.

Fairs and Exhibitions

September	6 to 21	*Bari*, Levant Fair.
	8 to 2 October	*Treviso*, National Fair and Exhibition of Silk Samples.
	11 to 27	*Marseille*, XXIVth International Fair.
	12 to 19	*Prague*, International Fair.

September	14 to 20	*Milan*, International Exhibition of the Leather Industry.
	15 to 30	*Trieste*, International Fair.
	18 to 26	*Ath* (Belgium), Exhibition of Agricultural and Horticultural Technique.
October	1 to 10	*Paris*, 3rd International Bottling Equipment Show.
	1 to 10	*Paris*, 2nd Show of Packing Material and 1st Printing Show
	1 to 17	*Paris*, International Exhibition of Nautical Industries.
	2 to 17	*Lugano*, International Fair.
	9 to 17	*Graz*, Samples Fair.
November	9 to 18	*London*, International Reconstruction Exhibition.

AGRICULTURAL PUBLICATIONS

Below we publish a selection of **Austrian publications** (agriculture, forestry, cultivation technique, food industry and allied branches) thought to be of interest to our readers.

PART I

Agrarische Post – Vienna, Year XXIV (1948) Published weekly. Annual subscription 26 Schilling.

Allgemeine Forst- und Holzwirtschaftliche Zeitung – Vienna. Technical Journal for forestry, forestal construction technique, wood utilization, game and fishery. Year 59 (1948). Issued fortnightly. Annual subscription 32 S. Publishers : Fromme & Co., Vienna.

Allgemeiner Mühlenmarkt – Vienna. Technical and informatory journal for the milling trade and the milling industry. Year 49 (1948). Published fortnightly. Annual subscription 24 S.

Der Anblick – Graz. Alpine region journal on game, fishing and hunting-dogs. Year II (1947/48). Issued monthly. Annual subscription 24 S.

Archiv für die gesamte Virusforschung – Vienna. Published at irregular intervals. Price according to size of each separate number (about 30 S.). Publishers : Springer, Vienna.

Der Bauer – Linz. Journal of the Austrian Chamber of Agriculture. Year I (1948) Published monthly.

Der Bienenvater – Vienna. Technical journal of the Austrian Bee-keepers' Association. Year 73. Monthly. Annual subscription 11 S. Publishers : Oesterr. Agrarverlag, Vienna.

Die Bodenkultur – Vienna. Austrian review of agricultural sciences. Edited by the College of Soil Science jointly with the Ministry of Agriculture and Forestry in Vienna. Came out quarterly, later monthly. Price per number 18.50 S. Publishers : Oesterr. Agrarverlag, Vienna.

Chromosoma – Vienna. Journal for cell and chromosome research. Published at irregular intervals. Price per number according to size (about 35 S.). Publishers : Springer, Vienna.

Der fortschrittliche Landwirt – Eferding. Agricultural technical journal of Austria. Year II (1947/48). Monthly. Annual subscription 30 S.

Die Gartenbauwirtschaft – Vienna. Journal of the vegetable and fruit marketing association for Vienna and environs. Year 1948. Monthly. Annual subscription 14 S.

Garten-Zeitschrift Illustrierte Flora – Vienna. Technical journal for gardeners, horticulturists, etc. Year 71 (1948). Published monthly. Annual subscription 20 S. Publishers : H. Hitschmann, Vienna.

Internationaler Holzmarkt – Vienna. Timber technical world review. Year 39 (1948). Issued fortnightly.

Der Kärntner Bauer – Klagenfurt. Year 98 (1948). Published fortnightly. Annual subscription 16 S.

Der Landarbeiter – Innsbruck. Organ of the Tyrolean agricultural and forestry workers association. Year 2 (1948). Published monthly.

Landtechnik – Vienna. Year I (1948). Monthly. Annual subscription 24 S.

Die Landwirtschaft. – Vienna. Journal for joint agricultural and forestry interests. Year 1948. Issued fortnightly. Annual subscription 20 S. Publishers : Oesterr. Agrarverl., Vienna.

Landwirtschaftliche Mitteilungen. – Graz. Journal of the Chamber of Agriculture and Forestry in Styria. Year 88 (1948). Published fortnightly. Annual subscription S 35

Landwirtschaftliche Nachrichten aus den Vereinigten Staaten – Vienna. Published by the American military forces in Austria (Information Services Branch).

Mikrochemia combined with *Mickrochimica Acta.* Vienna. Issued at irregular intervals. Price according to size of number (about 20 S.).

Mikroscopie – Vienna. Journal for microscopic research and methodology. Year 2 (1947/48). Annual subscription 40 S.

Reports of the Austrian Horticulturists' Society. Vienna. Year 2 (1948). Monthly. Annual subscription 8 S.

Reports of the experiment station for the fermentation industry and the Institute for experimental microbiology of the College of Soil Science. Vienna. Year 2 (1948). Monthly, Annual subscription 14 S.

Monthly issues for chemistry and other sciences. Vienna. Price per number according to size (circa 30 S.).

LEGISLATIVE NEWS

SUMMARY : I. NUTRITION : (*a*) Agricultural products in general (Italy, Switzerland) ; (*b*) Cereals, flour, bread (Denmark, France, Switzerland) ; (*c*) Meat (France) ; (*d*) Milk and cheese (Italy, Switzerland) ; (*e*) Sugar (France). — II. AGRICULTURE : (*a*) Administrative organization and agricultural improvement (Belgium, France, Switzerland) ; (*b*) Assistance to small farms (Denmark) ; (*c*) Relief and premiums (France) ; (*d*) Seed potato grading (France) ; (*e*) Cereal seed (France) ; (*f*) Seed potatoes (Italy) ; (*g*) Control of stored grain pests (Poland). — III. ECONOMIC AFFAIRS AND MARKETS : (*a*) European economic cooperation (France) ; (*b*) Agreements and conventions ; foreign trade (Italy, Switzerland). — IV. FORESTRY (Norway, Rumania, Switzerland). — V. FISHERY (Norway). — VI. RURAL WELFARE : Rural housing (Belgium).

I. - NUTRITION

(*a*) Agricultural products in general

ITALY

Law No. 1079 of 9 August 1948 (*G. U., No.* 190, 17 *August* 1948, *p.* 2912) repeals the following legislative decrees relative to the regulations governing foodstuffs : Decree Law No. 210 of 12 April 1947 on the sale of sweetmeats ; Decree Law No. 211 of 12 April 1947 relative to the sale of beef, buffalo meat, pork, mutton and horse-flesh ; Decree Laws No. 341 of 20 November 1946 and No. 212 of 14 April 1947 concerning restaurants and other retail enterprises where cooked viands are supplied and sold ; Decree Law No. 1172 of 29 October 1947 on milk and cheeses, and Decree Law No. 124 of 29 October 1947 regarding the right of the High Commissioner for Food to block 35% of imported foodstuffs.

SWITZERLAND

Ordinance No. 54 of the Federal Department for Public Economy, dated 24 June 1948 (*R. L. F., No.* 22, 1 *July* 1948, *p.* 782) abolishes rationing in the case of practically all foddstuffs. The Ordinance, effective on 1 July 1948, repeals an appreciable number of ordinances regulating the food and feedingstuff supply of the country by the application of rationing or a quota system, and which had been issued from 1939 up to 20 March 1948. The purchase and sale of flour, rice, fats and oil is to be regulated for all branches of the trade, in order that the consumer may receive as even a supply as possible. In the distribution of rice, however, dealers must see that priority is given to hospitals, day-nurseries, young children and the sick.

(*b*) Cereals, flour, bread

DENMARK

Notification No. 323 of 8 July 1948 (*L. A., No.* 64, 17 *July* 1948, *p.* 1581) applies to the delivery of and trade in the 1948-49 crops. The law prohibits foddering stock with rye or wheat or their by-products, which are to be reserved exclusively for human nutrition.

General provisions regulate the fixing of quotas for grain from the 1948 crop, subject to compulsory delivery. The quantity of rye and wheat to be consigned is established according to the land value of the farm and is calculated at about 400 kg. per 1000 crowns, when the land value is between 8,001 and 12,000 crowns.

The law requires that producers deliver their grain in good condition, and not admixed with other species.

In the event of usufructuaries being unable to meet their obligations, recourse may be had to a special board set up for this purpose, but appeal must be made before 1 September 1948.

Special dispositions regulate the price and sale of bran, third flour and, in general, all milling offals, and the use of the different purchase coupons.

Notification No. 324 of 13 July 1948 (*L. A., No.* 65, 20 *July* 1948, *p.* 1601) includes provisions regarding bread, flour and potato starch rationing.

Further dispositions authorize selling 300 grams white bread or 250 grams white flour, in addition to the official bread ration, up to 30 September 1948.

Similarly 250 grams of potato starch can be purchased up to the same date.

FRANCE

A Decree of 27 May 1948 (*J. O.*, *No.* 130, 3 *June* 1948, *p.* 5349) lays down that beginning 1 June 1948, the bread ration for growers of bread grains is fixed at 12 kg. per caput per month, replacing the ration of 10.5 kg. established by Decree of 28 August 1947 (see *Bulletin* No. 3, p. 237), which is repealed.

SWITZERLAND

Ordinance No. 199 of 14 May 1948 (*R. L. F.*, *No.* 17, 27 *May* 1948, *p.* 515) simplifies food rationing which, from 20 May 1948, no longer applies to the following products: cereal flakes; toasted wheat flour for soups; extra fine semolina; super semolina; special semoline for children; 'semouline'; green wheat; green wheat meal; green wheat flakes; rice flour (for children).

Ordinance No. 200 of the Federal War Office for Food, dated 25 June 1948 (*R. L. F.*, *No.* 22, 1 *July* 1948, *p.* 779), prohibits the use of bread grains for stockfeed, as also mixtures of bread grains and forage.

The said Ordinance annuls Ordinance No. 197 of 22 March 1948 relative to the sale of foodstuffs and fodders (see this *Bulletin*, No. 6, p. 511).

A Decree of the Federal Council of 1 July 1948 (*R. L. F.*, *No.* 23, 8 *July* 1948, *p.* 787) repeals, effective 1 July 1948, the Decree of the Federal Council dated 25 August 1939, relative to the formation of wheat, rye and 'strong' wheat flour stocks.

(*c*) Meat

FRANCE

Law No. 48-754 of 30 April 1948 (*J. O.*, *No.* 105, 1 *May* 1948, *p.* 4242) authorizes the Government to suspend, beginning 1 May 1948, for a period of not longer than three months, the application, in certain localities, of the production tax of 4% which is levied on fresh meat allocated for human consumption.

Decree No. 48-759 of 30 April 1948 (*Ibid.*, *p.* 4256) fixes the conditions governing the application of the aforesaid Law. The production tax of 4% provided for by Art. 11, (*c*) of the turnover tax Code is not applicable to selling operations involving fresh meat intended for consumption, and effected in communes with a population of over 20,000.

(*d*) Milk and cheese

ITALY

Legislative Decree No. 447 of 16 April 1948 (*G. U.*, *No.* 112, 15 *May* 1948, *p.* 1633) establishes that the regulations laid down for hygiene control, approved by Decree No. 994 of 29 May 1929, are to apply to the fat content of milk intended for the preparation of sterilized, evaporated, condensed milk or whole milk powder, notwithstanding the provisions contained in Art. 9 of the Legislative Decree No. 1172, dated 29 October 1947.

A Decree of the High Commissioner for Food dated 20 May 1948 (*G. U.*, *No.* 125, 1 *June* 1948, *p.* 1848) annuls the regulations laid down by the Ministerial Decrees of 16 February and 10 May 1941, and by the Food Board in regard to the minimum fat content required for cheeses, wherever these regulations do not conform to those established by Law No. 396 of 2 February 1939.

SWITZERLAND

Ordinance No. 52 of 23 April 1948 (*R. L. F.*, *No.* 14, 29 *April* 1948, *p.* 427) partially abolishes the compulsory delivery of milk and dairy products.

From 1 May 1948 onwards, the regulations of Ordinance No. 10 of the Federal Department, dated 8 November 1940, and of Art. 2, (*a*) of Ordinance No. 142 of the Federal War Office for Food of 3 February 1948, are no longer applicable to:

(*a*) the delivery of milk and dairy products in the Alpine and mountain regions,

(*b*) the delivery of Tilsit and mould skim milk and ¼ fat cheeses throughout Swiss territory.

The provisions of the aforesaid Ordinance No. 10, however, remain operative in the case of delivery of cheeses manufactured in the Alpine regions when the lessees or owners of cows are unable to claim these products for their own provisioning:

(*e*) Sugar

FRANCE

An Order of 2 June 1948 (*J. O.*, *No.* 135, 9 *June* 1948, *p.* 5572) fixes the sugar allowances for industrial sugarbeet growers and their workers for the 1948-49 season. Every beet-grower delivering beets to the sugar-mills and distilleries will receive, in addition to the normal rations, a specific quantity of sugar, calculated as follows: up to 100 tons of beets delivered, 1.5 kg. sugar per ton; from 101 to 300 tons beets, 1 kg. per tons; from 301 to 500 tons, 0.75 kg.; over 500 tons, 0.5 kg. sugar per ton. Besides this allowance, the planter will be granted 4 kg. of sugar per hectare for field operations (thinning and lifting).

II. - AGRICULTURE

(*a*) Administrative organization and agricultural improvement

BELGIUM

A Decree of the Regent dated 13 February 1948 (*M. B., No.* 166-167, 14-15 June 1948, p. 4887) sets up a national committee for agricultural research at the Ministry of Agriculture. The work of this Committee is to coordinate the activity of the different research centres ; to promote closer collaboration between these centres and to suggest means of assuring the development of agricultural research.

FRANCE

By Order No. 48-845 of 20 May 1948 (*J. O., No.* 119, 21 *May* 1948, *p.* 4857) the Ministry of Agriculture is authorized to set up, by ministerial decree, regional agricultural committees instructed to draw up regional programs of investigations and practical applications with a view to directing and developing agricultural production in regard to modern technique and equipment and the natural possibilities of the different regions.

In his statement theMinister of Agriculture clearly indicates the reasons and scope of the decree. The economic recovery of France, which should be accomplished during the period of execution of the Marshall Plan, depends on the rational exploitation of the entire agricultural resources of the country. The requirements of domestic consumption, and the necessity of contributing, by exporting all available surplus produce, to a trade balance, impose a heavy burden on French agriculture. Consequently, it is essential for the systematic investigation of the aptitudes and means of French agriculture to be brought up to date and continued. Instead of departments, which give too narrow and frequently artificial a plan, their number making coordination very difficult, after careful examination of the different aspects, the land has been divided into ' agricultural regions ' consisting of a group of departments and comprissing areas as homogeneous as possible.

Each region is studied by a regional agricultural committee which is made up of representatives of all the services attached to the Ministry of Agriculture. The participation of the chairmen of the departmental agricultural boards in the regional agricultural committee ensures the indispensable collaboration of agricultural authorities and farmers for establishing a coherent agricultural policy. The projects draftes by the regional agricultural committees are submitted to the Minister of Agriculture who may have them examined by a small central committee. This central committee is entrusted with preparing directives for the regional agricultural committees, examining the proposals and reports of the said committees and giving its opinion on all questions submitted by the Minister.

The Minister of Agriculture is authorized to set up commissions, composed of experts selected for their ability, to study specific problems. The reports of these commissions are submitted, for examination and advice, to the competent regional agricultural committee which will convene joint meetings of the several commissions. The programs drawn up by the regional agricultural committees, and the reports of the commissions, will be transmitted for decision to the Minister of Agriculture who will order execution through the regular channels for each type of work.

The Decree substitutes and repeals Decree No. 46-1596 of 5 July 1946 relative to the agricultural rebuilding up of certain regions. The boards for investigation and coordination set up by virtue of the said Decree, however, are retained and considered as commissions for the study of certain specific problems.

By application of Order No. 48-845 of 20 May 1948 as above, the Minister of Agriculture has set up, by Ministerial Decree of 3 June 1948 (*J. O., No.* 132, 5 *June* 1948, *p.* 5452) a regional agricultural committee for each of the 24 agricultural regions into which France has been divided. Each committee will include inspectors general for agriculture, waterways and agricultural engineering, studs and regional veterinary services ; chiefs of service of the Ministry of Agriculture operating in the departments comprised in the region, and the chairmen of the departmental agricultural boards of the departments in question.

SWITZERLAND

An Order of the Federal Council, dated 26 April 1948 (*R. L. F., No.* 15, 15 *May* 1948, *p.* 433) suppresses the milk and dairy products section of the Federal War Office for Food, as from 30 April 1948. The functions of the aforesaid section will henceforth be entrusted to the Agriculture Division of the Federal Department of Public Economy which is considered as substituting the Federal War Office.

Ordinance No. 53 of the Department of Public Economy for food and fodder supplies, dated 10 May 1948 (*R. L. F., No.* 16, 10 *May* 1948, *p.* 508) repeals, beginning 15 May 1948, the Ordinance of 14 May 1941, expanding the market gardening information service, and Ordinance No. 33 of 8 July 1942 relative to the food and feed supplies of the country (vegetables), as well as all other prescriptions based on these two Ordinances.

(*b*) Assistance to small farms

DENMARK

Law No. 339 of 9 June 1948 (*L. A., No.* 68, 1 *August* 1948, *p.* 338), with a view to assisting farmers, carries dispositions for establishing and

supplementing small farms. The new Law will be applied by the Ministry of Agriculture, assisted by a commission composed of delegates from every region of the country, by the State Committee for land problems, boards of small farmers from the different territories, departmental assemblies and a board of three members from each commune with small farms. The Law specifies the qualifications of the candidates for the aforesaid offices and regulates the distribution of State funds.

The provisions of section IV lay down the procedure to be followed in establishing or consolidating lands pertaining to private individuals; the provisions in section VII regulate the granting of supplementary loans to owners of farms established in accordance with the dispositions of preceding land laws.

(*c*) Relief and premiums

FRANCE

An Order of 30 August 1948 (*J. O.*, *No.* 213, 8 *September* 1948, *p.* 8862) fixes the 1948 premium rate for promoting the cultivation of wheat and rye. The bounty established by Law No. 47-1326 of 18 July 1947 (see this *Bulletin*, 1947, No. 2, p. 162) is fixed, for the 1948 crop and per hectare of wheat or rye actually sown and harvested, at the value of one quintal of wheat, grower's selling price, statistics tax not deducted. To qualify for this premium, the grower is required to sign, before 1 December 1948, a statement indicating his crop and contracting to deliver the wheat and rye as provided for by Order of 14 July 1947 (see this *Bulletin*, No. 2, p. 156).

(*d*) Seed potato grading

FRANCE

With a view to repressing frauds, Decree of the Minister of Agriculture, dated 13 May 1948 (*J. O.*, *No.* 118, 20 *May* 1948, *p.* 4833) prohibits all sellers to transport, for the purposes of sale, of putting on sale or selling non-graded seed potatoes. Grade should be indicated by weight or size. Authorized grades should correspond to the standards given in the list appended to the Decree. The grade should be indicated on the invoices and all documents connected with the sale of seed potatoes, and on the labels which must be affixed to the packs. The Decree specifies the limits allowed for both weight and size grading.

(*e*) Cereal seed

FRANCE

Order No. 48-1335 of 27 August 1948 (*J. O.*, *No.* 204, 28 *August* 1948, *p.* 8485) regulates the trade in seed-grain.

Section I concerns purchase from growers. Wheat, rye, oats or barley can only be bought from growers, for the purpose of selling as seed, by seed enterprises. The latter term is taken to imply plant-breeders, merchants and cooperatives having contracts with the growers and engaged in the production and supply of seed conformably with Order of 7 April 1937 relative to the repression of fraud insofar as the seed trade is concerned.

Section II specifies the conditions to be met by enterprises engaged in the seed-grain trade and Section III fixes selling regulations. All consignments of seed-grain must be accompanied by a circulation permit conforming to the rules of Section IV on the transport of seed-grain.

Section V comprises measures for ensuring the control of selection and breeding establishments and, lastly, Section VI lays down the penalties for all infractions of the dispositions of the said Order.

(*f*) Seed potatoes

ITALY

A Ministerial Decree of 31 July 1948 (*G. U.*, *No.* 179, 4 *August* 1948, *p.* 2807) provides the regulations governing 1948-49 importation of potatoes for seed. In partial derogation of the prescription prohibiting the importation of potato tubers, ratified by Ministerial Decree of 24 March 1948, this commodity can, in exceptional cases, be imported contingent on compliance with the dispositions laid down by this Decree and on authorization on the part of the Board of Foreign Trade after favourable recommendation by the Ministry of Agriculture and Forests.

(*g*) Control of stored grain pests

POLAND

A Decree of the Minister for Industry and Trade and the Minister of Supplies, issued in conjunction with various other Ministers, dated 10 July 1948 (*D. U. R. P.*, No. 37, 6 *August* 1948, *text* 269, *p.* 647) concerns the control of pests of cereals and cereal products in processing plants and warehouses. The Decree lists the different pests: coleoptera (weevils), moths, rodents, etc. against which mills, processing plants and warehouses have to be protected. Cleanliness should be maintained by careful daily sweeping of the floors, platforms and stairs and dusting of the walls and ceiling; shaking the sacks outside the plant; cleaning the machines and apparatus; luting the holes and cracks in the floors, walls, etc. and cleaning of the floor-boards if they collect debris. Bran and offals should be kept separate. The operators of the various establishments are required to have the premises disinfected at least once a year, between 1 May and 30 September, and, when requested by the author-

ities in the case of pest infestation. When the presence of these pests is noted the operator must take the necessary steps to exterminate them, and immediately notify the local industrial authorities charged with supervising the circulation of cereals and milling products, and also the plant protection station. The said authorities have access to premises, plants, mills, warehouses, etc. and may take samples for checking. Direct control concerning the prevention of pest attack and destruction devolves on the administrative authorities of the voivodeship. The circulation of infested grain and grain products, without complying with the regulations laid down by ministerial order, is prohibited ; grain or grain products cannot be loaded onto boats, cars, trucks, etc. infested by pests. The functions of the control organizations will be regulated by the Ministry of Trade and Industry.

III. - ECONOMIC AFFAIRS AND MARKETS

(*a*) European economic cooperation

FRANCE

Order No. 48-1337 of 27 August 1948 (*J. O., No.* 205, 29 *August* 1948, *p.* 8499) publishes the Convention of European Economic Cooperation signed in Paris on 16 April 1948 by the Governments of Austria, Belgium, Denmark, France, Greece Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Sweden, Switzerland, Turkey, United Kingdom and the Commanders-in-chief of the French, British and American occupation zones in Germany.

(*b*) Agreements and conventions; foreign trade

ITALY

Legislative Decree No. 512 of 3 February 1948 (*Suppl. to G. U., No.* 119, 24 *May* 1948, *p.* 2) ratifies the trade agreement concluded in Berne 25 July 1947, between Italy and France, by an exchange of notes making changes in the economic agreements of 22 December 1946. According to the first letter addressed by the Chairman of the Italian Delegation on 25 July 1947 to the Chairman of the French Delegation, trade transactions on a reciprocal basis will be effected between the two countries. Other merchandise and supplementary quotas have been added to the trade agreement of 22 December 1946. Consequently, lists A and B appended to the said agreement, are substituted by lists A, A-1, A-2, and B, B-1, B-2, attached to the above-mentioned letter. These lists include various agricultural products. The new lists resume the merchandise which will continue to be regulated within the limits of the payment agreement of 22 December 1946. When the two accounts as indicated in Art. 1, para 2, of the payment agreement of 22 December balance, the competent authorities of the two countries will meet to re-examine the said lists. Lists A-1 and B-1 enumerate the goods which can be exchanged on a reciprocal basis. These transactions are submitted for preliminary approval to the competent authorities of the two countries. Lists A-2 and B-2 refer to goods for which regulation is provided for by the exchange of letters of 10 April 1947. Other letters of the same date concern the institutions commissioned to register the exchange transactions, to follow their execution and to keep the accounts which will have to be opened for each transaction. These institutions will draw up jointly the terms and conditions to which the exporters and importers of the two countries have to conform, and the measures these bodies will have to take in accountancy operations. The goods exchangeable on a reciprocal basis are divided, according to their economic value, into three categories. Exceptions may be made to this general rule, in the case of additions to the fixed quotas or goods not figured on lists A-1 and B-2. Other provisions concern import licences and dollar transfers by the application of Art. 4, para 1, of the payment agreement of 22 December 1948.

Legislative Decree No. 466 of 6 March 1948 (*Suppl. to G. U., No.* 114, 18 *May* 1948, *p.* 13) ratifies the different economic agreements concluded in Rome 5 November 1947 between Italy and Bulgaria, as well as an exchange of letters dated 20 December 1947 relative to the said agreements becoming operative. The agreement regarding trade exchanges, which include various agricultural products, provides that these exchanges will effected, for the moment, on the basis of reciprocal transactions, subject to preliminary authorization of the competent authorities of the two countries ; this authorization will be granted in accordance with the economic value of the goods involved in the transactions, in order to maintain a balance in the value of the goods exchanged between the two countries. Transactions will be authorized within the limits of the quotas for goods originating in Italy, as indicated in list A appended to the agreement, and quotas for goods originating from Bulgaria, indicated in list B also appended to the agreement. It has been decided, however, that the two governments may, by mutual agreement, increase the quotas given in the aforesaid lists and add quotas for other goods. To facilitate the exchange of goods between the two countries, a joint committee has been set up to deal mainly with the effective execution of this agreement and with any disputes which might arise.

Legislative Decree No. 385, dated 8 April 1948 (*Suppl. to G. U., No.* 106, 7 *May* 1948, *p.* 2) ratifies the agreements signed in Buenos Aires 13 October 1947 by Italy and the Argentine Republic. Of these

a trade and financial agreement includes in the general provisions an undertaking on the part of the two governments to ensure the application of close reciprocity for all commercial and financial operations carried out between the two countries, to examine and decide upon the proposals made by either side, with good-will, in order to facilitate and improve the economic relations between the two countries, to grant every possible facility compatible with the respective laws, not only in regard to customs, charges and duties but also to the formalities and administrative procedure to which the importation, circulation, transport and distribution of natural or manufactured products are subject. The agreement also contains various provisions relative to the exportation of certain Argentine products, including agricultural produce, for shipment to Italy, and other dispositions concerning the export to Argentina of Italian products, including agricultural produce, conform to the financial measures and rules covering method of payment, shipping and various other questions.

Legislative Decree No. 994 of 22 March 1948 (*G. U., No.* 175, 30 *July* 1948, *p.* 2734) ratifies the following agreements signed in Rome 28 November 1947 between Italy and Yugoslavia : (*a*) trade and economic collaboration agreements ; (*b*) protocol relative to the exchange of goods effected from 28 November 1947 to 28 November 1948 ; (*c*) agreement regarding non-commercial payments between the two governments ; (*d*) special protocol provided for by the trade and economic collaboration agreement ; (*e*) exchange of notes.

Legislative Decree No. 885 of 10 April 1948 (*G. U., Suppl. No.* 160, 13 *July* 1948, *p.* 1) ratifies the trade and payment agreements signed in Berlin 28 June, 3 July 1947 between the Italian Government and the Anglo-American and Soviet military administrations in Germany.

SWITZERLAND

Federal Order of 10 June 1948 (*R. L. F., No.* 21, 24 *June* 1948, *p.* 715) ratifies the International Wheat Agreement concluded in Washington on 6 March 1948.

Federal Order dated 19 June 1948 (*R. L. F., No.* 30, 26 *August* 1948, *p.* 868) ratifies the trade treaty between the Swiss Confederation and the Union of Soviet Socialist Republics, concluded in Moscow on 17 March 1948. This treaty, applicable for one year became operative 20 days after the instruments of ratification have been exchanged, namely, on 31 August 1948.

IV. - FORESTRY

NORWAY

In Norway the Ministry of Agriculture on 10 May 1948 (*N. L., No.* 19, 21 *May* 1948, *p.* 392) issued new measures regarding the sale and use of lumber, in enforcement of the dispositions of the Law of 14 May 1917 and of the Royal Resolution of 20 February 1948 which bear provisions aiming at ensuring supplies of staple foods and other products. At the same time the provisions of 26 February and 21 April 1947 have been abrogated.

According to the aforesaid provisions, selling, purchasing or ceding lumber without special authorization is prohibited. A permit is also required to use lumber. The transfer of permits for the purchase or use of lumber is also prohibited.

The legislator, however, taking into account the requirements of private individuals, has made certain exceptions. In effect, each household is allowed to purchase 1/10 standard (1 standard = 165 cubic feet) every 6 months for domestic needs, provided that other permits for the purchase of lumber have not been granted.

Proprietors may use lumber from their own woodlands for repairs to accessory buildings, fencing or working equipment, and for building and repairing shelters for men and horses during lumbering operations, or for the upkeep and repairing of houses.

It is understood, however, that these various operations require authorization from the competent district forest inspector before execution.

The provisions in question include a definition of the term lumber.

Lastly, all interested parties are required to supply the Ministry of Agriculture with full details on the production, consumption, purchase and sale of lumber.

RUMANIA

Decree No. 14 of 28 April 1948 (*M. O., Part. I, No.* 100, 29 *April* 1948, p. 3883) regards the organization and functions of the Ministry of Forestry.

The Ministry of Forestry is to guide and supervise, in the interests of the people, all activities concerning the forest and game heritage of the country, and to manage the State forests. The Ministry also has to regulate and direct : the restoration, improvement and rational utilization of forests, wooded pastureland and mountain streams, hunting and fishing in the said waters ; control of poaching and forest fires ; improvement of deteriorated land and re-afforestation ; coordination of forestry with lumber utilization, etc ; promoting of forest science and technique ; forestry planning within general planned programs, etc. The Ministry is headed by the Minister assisted by general secretaries and advisers. The Ministry consists of the following departments : planning, directing and technical supervision (including the forest protection bureau) ; exploitation and utilization ; forest property, game and fishery ; technical instruction ; personnel ; accountancy ; legal office and the Minister's office. The field services resemble those establish-

ed for the Ministry of Agriculture by Decree No. 13 and in the same way are arranged according to the administrative division of the country. The provisions relative to the measures which may subsequently modify or supplement the working of the Ministry are also similar.

The two above-mentioned Ministries replace the former Ministry of Agriculture and Domains. The funds allotted to this Ministry will be divided between the two newly authorized Ministries. All provisions opposed to the two Decrees in question are rescinded.

SWITZERLAND

Ordinance No. 49*a* of 16 June 1948 (*R. L. F.*, *No.* 21, 24 *June* 1948, *p.* 752), relative to the cost of living and measures aimed at protecting the market, repeals Ordinance No. 49 of the Federal Public Economy Department, dated 10 March 1945, regarding the equalization fund for prices of lumber from outlying forests.

Ordinance No. 2 of the Federal Department for the Interior, dated 8 September 1948 (*R. L. F.*, *No.* 33, 16 *September* 1948, *p.* 963) suppresses certain provisions regarding the production, trade and use of lumber. As from 30 September 1948 Ordinances No. 3 of 10 September 1942 on the delivery and purchase of unhewn timber, and No. 4 of the same date on the production, preparation and delivery of lumber are repealed. Sale by auction of unhewn gymnosperm wood remains prohibited.

V. - FISHERY

NORWAY

Provisional Law No. 6 of 2 July 1948 (*N. L.*, *No.* 26, 15 *July* 1948, *p.* 610) regulates the production, trade and export of fish and fish products.

Herring and shell-fish are considered as fish. The aim of the restrictions imposed by the new Law is to establish as favourable exchange relations with abroad as possible ; consequently sales, contracts for products intended for export can only be concluded if approved by the competent ministerial committee.

The King has the faculty of decreeing dispositions which oblige the exporters of the said products to join an association authorized by the competent Ministry. Likewise the King has the option of authorizing the competent Ministry to take further measures relative to the regulation, compulsory delivery and quota fixing of the said products.

VI - RURAL WELFARE

Rural housing

BELGIUM

Law dated 29 May 1948 (*M. B.*, *No.* 162, 10 *June* 1948, *p.* 4752) bears special provisions aimed at encouraging private initiative in building inexpensive dwelling-houses and purchasing small holdings. The Law will remain in force for five years or until 50,000 inexpensive houses or small holdings have been set up. The State is authorized to guarantee the reimbursement of the amount of the loan on mortgage which exceeds 70% of the total value of the property, amount up to which the general savings and superannuation fund or the national small holding association grant loans for building inexpensive houses or the purchase of small holdings.

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